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ABSTRACT

This booklet provides general guidelines for those involved in planning a resource center for the Colleges of Applied Arts and Technology, CAAT. The first section of the document concerns the formation of a resource center building committee and a broad outline of the various considerations to be included in planning the center program. The second section contains a brief summary of CAAT educational philosophy and a discussion of the resource center as part of an information network and as it relates to (1) the community, (2) regional libraries, (3) local industry, and (4) the College Bibliocentre. The third section concerns standards for determining quantities and sizes of collections of print and nonprint materials. The fourth section describes and illustrates different items of equipment necessary for the storage and use of the varied center materials. The fifth section discusses planning determinants for centralized vs. decentralized organization of the resource center, expansion limitations to be avoided, and the physical determinants of the center. The document includes photographs, illustrations, and charts. (MLF)

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The College Resource Centre

Colleges of Applied Arts and Technology

Prepared by
SCHOOL PLANNING AND BUILDING RESEARCH

September 1971

Architectural Services of the
School Business Administration Branch
Ontario Department of Education

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Introduction

Traditionally, the library was little more than a depository for books. It was not very long ago that the only people who had access to libraries were the privileged élite of church and state. Whatever information was available was usually stringently controlled by these institutions, and the average person simply did not have access to information. The only way he could learn about his world was by word of mouth. With the industrial upheavals of the nineteenth century, the public library, along with the museum, emerged as a philanthropic gesture toward the people who suffered all the squalor and inconveniences of overcrowded cities. However, as new sources of information emerged, library development became more and more difficult to control or guide.

During the past decade, there have been radical changes in libraries, as they have gradually embraced the new technological developments in information-transfer. Collections of phonograph records, microfilms, and audio-visual tapes are now integrated with traditional print material. This addition has not made the book obsolete. (It is still the most efficient and widely used communications device.) It simply means that the student is able to choose from a wide range of media the one that is most appropriate to his particular need.

This general availability of information has far reaching implications. For example, it has become extremely difficult to channel information through a formal pattern of instruction such as a "graded" system or "course". In fact, the classroom is now recognized as only one of the many situations where the educational process is generated. The total learning environment includes the whole campus and community, where each student is stimulated by a different combination of interests. These independent learning patterns are also apparent at the elementary and secondary levels presenting the colleges with a new breed of student who is accustomed to defining his own educational program. As the courses at the colleges of applied arts and technology become less structured, the resource centre must accept a broader role: it must give the student all possible assistance and easy access to the information he requires.

Who are the people who will use a community college resource centre? We must be careful not to define such a facility too narrowly, or its usefulness will be limited. However, the college resource centre will have its own unique character (quite different from a university or public library) suited to its particular users. The colleges have a wide range of subjects and levels of instruction, and a student population (post-secondary, retraining, and continuing-education) which is difficult to define. The resource centre must attract the full range of students between the two extremes: on the one hand, the non-literate for whom the printed page is often an unfamiliar barrier to knowledge, and on the other, the book oriented student looking for maximum information and a minimum of distractions.

Beyond this specific task, the college resource centre must be prepared to serve the whole community, complementing, rather than duplicating, the local public library. Residents of the community who are directly associated with the college, such as businessmen involved in co-operative programs or people taking any course should have full access to the resource centre.

The task of planning a facility to suit these complex requirements is not an easy one. The purpose of this brochure is therefore to provide general guidelines for everyone involved in this activity. The traditional rows of shelves and reading-tables are no longer adequate. These must be replaced by a variety of spaces that can comfortably accommodate many kinds of activities: places for listening, watching, chatting, reading, and so forth. The resource centre should also be an integrated part of the campus so that its equipment can be fully utilized. It is important that the space provided does not restrict what goes on inside; it should be able to accommodate future growth and change with ease.

"Every twenty-four hours enough technical papers are turned out around the globe to fill seven sets of the 24-volume *Encyclopaedia Britannica.* The output is rising every year. This year's crop: some 60,000,000 pages or the equivalent of 465 man-years of steady round-the-clock reading."

From the *Wall Street Journal*

Statistics such as these raise an important question: Is there an upper limit to this incredible accumulation of material? Any information that may help us to understand ourselves is useful. We must be careful, however, not to regard information as an end in itself or we may find ourselves in an absurd situation where information *about* the world is more important than the real world around us. Therefore, when considering a resource centre, certain priorities must be established. It is of prime importance that a resource centre be a tangible manifestation of what we are learning. Instead of an isolated, joyless space, suitable only for the dissemination of information, the resource centre can be a living place that embraces all the marvellous variety of the real world. Once this priority is clearly established, it is possible to build sound physical accommodation for a resource centre.

Part 1
Procedures for Developing a Program

Forming a Building Committee

As the need for a new or extended resource centre is recognized, the Board of Governors should authorize the formation of a resource centre building committee. If this procedure is not followed, it is too easy for one person, with knowledge limited to his specialized field, to put arbitrary controls on the evolution of the program. For example, a librarian might be overly concerned with the functional aspects of his domain, failing to recognize the relationship of the resource centre to the total college. An architect might sacrifice functional criteria to aesthetic whims. A college administrator might not grasp the importance of a resource centre. Each person's contribution must be evaluated and synthesized until a valid set of criteria is gradually formulated. These criteria will focus attention on the basic fundamentals. They will also serve as ground rules against which specific sketch plans and proposals can later be evaluated. The meetings of the committee should be organized on a regular basis, especially when the program is being formulated.

All the different disciplines involved in producing the resource-centre should be represented on the committee. These may be divided into four groups:

1 Resource-centre director and staff members, plus a library consultant. The resource-centre director is probably a permanent member of the college staff. Thus he may be overly susceptible to administrative, faculty, and student pressures. For this reason, it is recommended that a library consultant with an objective point of view be hired. He is usually a librarian with experience in defining library services for a particular set of conditions. He is able to interpret these to the architect. Later, he can review the architect's proposals to make sure that they are compatible with the program.

The committee should have contact with local librarians, if the new resource centre is to be co-ordinated with already existing services.

2 The Director of the Physical Plant
It is important to have someone on the committee who is familiar with the overall planning and building policies of the particular college. His experience with previous projects, and with particular conditions in the existing buildings, can be helpful.

3 Faculty and Students
These are important because they can help to keep the general goals of the administration in line with the specific requirements of the library users.

4 The Architect
It is most important that the architect be included in the decision-making process at the earliest possible stage. Having seen the program develop and having made his own contribution to it, he should have a full grasp of what is required when the time comes for him to produce a building to suit the criteria.

Program Guidelines

The following can serve as a broad outline of the various considerations to be included in the program.

1 Reconsider the particular philosophy of the college, both as it was initially stated and as it has evolved. (This should be considered in the context of a general philosophy of education.) Define the way in which the resource centre will relate to this philosophy.

2 Establish the types of services to be provided: for example, lending, reference, research, audio-visual, technical, community services, etc.

3 Establish the types and quantities of material to be housed: for example, books, periodicals, pamphlets, clippings, photographs, films, slides, tapes, records, microfilms.

4 Establish the anticipated number and types of users and their patterns of use. Figures based on existing demand should include an allowance for increased use stimulated by the new facility. The study should discover what types of student and faculty are *not* using the existing library facilities and why.

5 Establish the amount of space required for all the different operations within the resource centre.

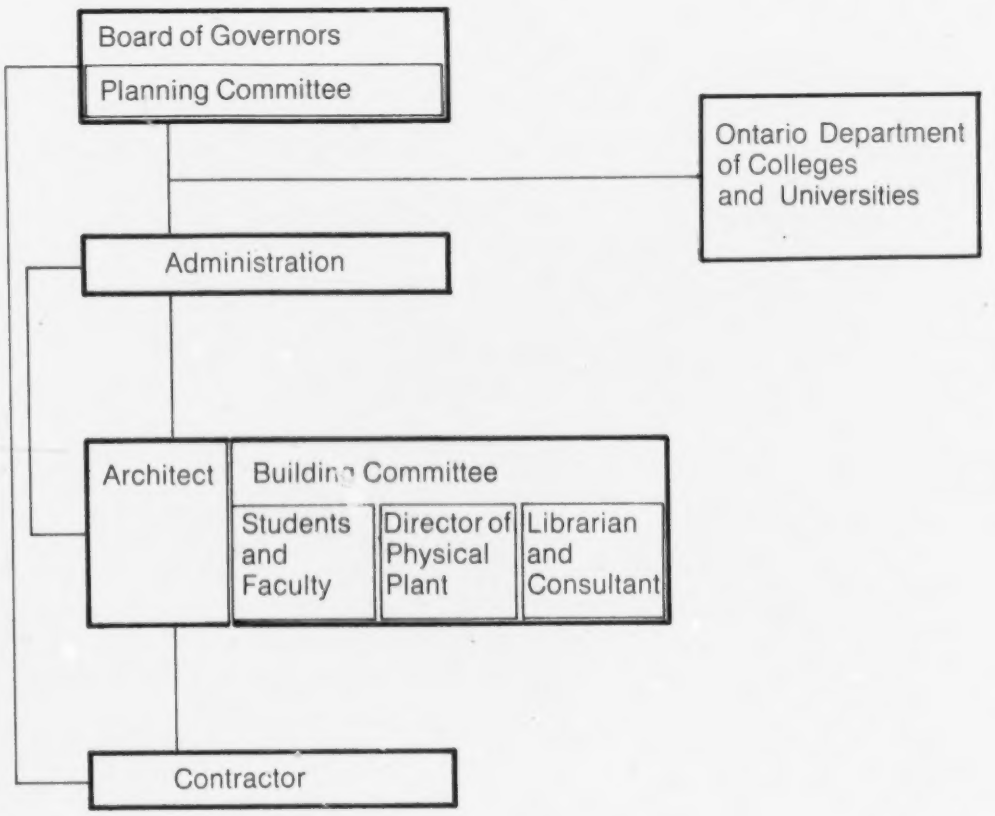
6 Establish a means of anticipating the rate of growth of both the collection and the number of users. Determine how this growth and change is to be physically accommodated.

7 Establish budget figure goals for capital costs, operational costs, and maintenance costs.

8 Establish an administrative procedure for the project with the architect. The extent of professional advice additional to the normal architectural services will depend on the size and type of project. Library consultants and interior designers may be included in the design team.

- Define the responsibilities of the design team and the client's representatives.
- Establish the procedures for exchanging and processing information.
- Establish the procedures for the client's approval of the architect's and the consultant's proposals.
- Establish a timetable for the completion of all phases of the job.

The greatest obstacle to the development of satisfactory physical accommodation is the lack of a clear concept of what the particular resource centre's services should be. It is the job of the building committee to articulate this concept and to pilot it through the various planning procedures without losing sight of it.



Part 2
General Considerations

The colleges of applied arts and technology provide an alternative stream to the universities for a large group of students whose interests are oriented more in a practical than a theoretical direction.

In providing resources for the students, staff, community and industry, it is necessary to regard the users as customer-clients—customers who must be attracted and clients who must be sufficiently satisfied with the service to come back.

The role of the library has changed from a repository of books to a learning-resource centre. The change has been physical as well as philosophical. The contents are different: the learning-resource centre utilizes all forms of media that provide a

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1 2 3
Niagara College Resource Centre

A Brief Summary of CAAT Educational Philosophy

mode of information-transfer, not just books or printed media. The attitude is different: instead of specific explanations or designated tasks, the objective is enquiry and investigation with no limits except those which the individual defines for himself. The space is different: monumental reading rooms are replaced by private study areas, designed to suit human proportions; the rubber-soled, silence-please atmosphere is replaced by areas where lively discussions or a cigarette and coffee are not frowned upon.

The resource centre can provide the interdisciplinary link between the diverse programs and courses of study offered by the CAATs. College graduates should be more than technocrats, highly trained for a particular career; they need a general awareness of the problems common to man in an industrialized society. Students and faculty, using the library for specialized information services in their fields, can be made aware of a wider intellectual world by means of displays and exhibits or through subtle arrangements of materials that encourage interdisciplinary browsing.

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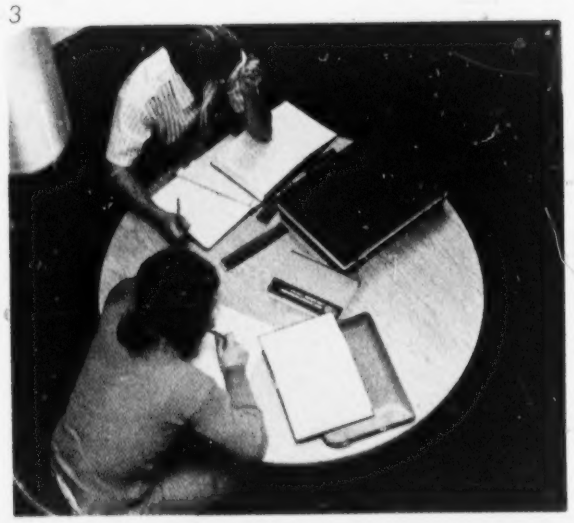


General Guidelines

When introducing the enabling legislation to the provincial parliament in May 1965, the Minister of Education defined the three major responsibilities of every college of applied arts and technology:

- to provide courses of types and levels beyond, or not suited to, the secondary school setting;
- to meet the needs of graduates from any secondary school program, apart from those wishing to attend university;
- to meet the educational needs of adults and out-of-school youth whether or not they are secondary school graduates.

In the third edition (June 1967) of the Department of Education publication *Basic Documents*, one document, "Some Unique Features", was presented as "an attempt by a group of competent persons to give shape to their views of colleges as the years unfold." Below is an excerpt:

"If the Colleges of Applied Arts and Technology in Ontario are to establish social identity, they must be based on four principles:

- they must embrace total education, vocational and avocational, regardless of formal entrance qualifications, with provision for complete vertical and horizontal mobility;
- they must develop curricula that meet the combined cultural aspirations and occupational needs of the student;
- they must operate in the closest possible co-operation with business and industry, and with social and other public agencies, including education, to ensure that curricula are at all times abreast, if not in advance, of the changing requirements of a technological society;
- they must be dedicated to progress, through constant research, not only in curricula but in pedagogical technique and administration.

From these four principles, a number of recommendations emerge.

Role of the College

Colleges of applied arts and technology are neither universities nor extensions of the secondary school; they will find their identity in service to that large section of society that is inadequately served by the university. Programs of instruction in the colleges, therefore, will encourage a learning-atmosphere in which students may feel reasonably comfortable.

The Community Resource Centre

A broad spectrum of extension programs must be developed to include, along with regular evening classes, staggered timetables to accommodate shift-workers, correspondence courses, and satellite courses to be offered in outlying districts. For these, the resource centre (library) might operate twenty-four hours a day, if necessary, both on an attendance and on a mailing basis. Educational T.V., through the use of video tape recorder, would be an important adjunct to such programs, as would laboratory facilities secured from educational institutions throughout a college area. Two distinct types of programs would be offered: credit courses to parallel the regular day-time courses and leading to the same certificate or diploma, and cultural and recreational courses to fulfill community requirements for many leisure-time activities. Space for such recreational activities should be provided in workshop areas; thus, with painting, sculpture, and so on, the college could possibly function as a community art centre.

As the community's recreational and resource centre thus envisaged, a comprehensive college of applied arts and technology will include (or divide among the divisions of a split campus) a professionally designed and equipped resource centre, a professionally designed and equipped auditorium, lecture theatres, seminar rooms, and lounges. A data centre is essential to research, new instructional techniques, to in-service research experiments, to course development, to faculty research needs, to professional development, and to teacher education."

Professional consultants from outside the CAAT system often are confused about the difference between college and university streams of education. The *Educational Prospectus of Lambton College of Applied Arts and Technology* (pp. 59-61) includes the following comparison of the two educational orientations:

Colleges of Applied Arts and Technology

Concern with the bridge between theory and action in particular contexts

Relates ideas and ties them together into particular situations

Information as resource for work

University

Concern with theory and universal ideas

Defines ideas and categorizes them for general situations

Information as product of work

Individual Philosophies

Within these general guidelines, the colleges of applied arts and technology have developed into twenty distinct entities, united by common guidelines and goals, but individual in their manner of fulfilment. By January 1971, there were over 30,000 full-time post-secondary students and 19,000 retraining students enrolled in programs in some seventy significant locations, as well as such unique "campuses" as two trap-lines in the northern bush, a trailer parked where required in the inner core of Toronto, and a bus exploring eastern Canada. The trap-lines have no resource centre, but the bus has a carefully selected library of books and non-print materials fitted into the luggage racks. One of the aims of the trailer is to make inner-city residents aware of the educational and employment potential of the urban environment, including libraries.

It is as difficult to delimit the functions of the learning resource centre in a college of applied arts and technology as it is to define the functions of the institution itself. The majority of the colleges are multi-cellular in structure and within each unit the educational philosophy reflects the demands of the local circumstances. Conditions in some areas will lend themselves more readily than in others to community use of the resource centre, although there should never be any narrow boundaries imposed on its use. Whenever possible, staff, students, and community should be able to share the facilities provided in the resource centre.

The following represents some of the attitudes of particular colleges towards their resource centres.

The process of educating a student implies the necessity of providing only a portion of what is required and encouraging the student to develop and add to it. Such a process leads to scepticism, the creation of an independence of mind and spirit, and above all a willingness to re-examine traditional points of view impartially. It is impossible to educate without forcing the individual to think, test and evaluate, and the library must become an essential tool in the process. The Library Resource Centre is the hub of the college learning process. Indeed, it may one day replace the classroom.

St. Lawrence, *Recommendations*, Appendix IV

Cambrian College, based on the academic philosophy stressing learning rather than teaching, recognizes that the Resource Centre is the dynamo for personalized learning. The Resource Centre is an active integral part of the College's total purpose as well as the space for a well catalogued assortment of print and non-print communications media.

The use of the Resource Centre, co-ordinated with the curriculum and other facilities must stimulate and encourage a spirit of questioning, investigation and exploration. The Resource Centre facilities must be conducive for the student to think, to read, to watch, to listen on his own or with other fellow students—to develop and satisfy his interests and curiosity—to develop his motivation from continuous, autonomous and pleasurable learning.

Cambrian, *P.S.R.*

Any College or University library serves several functions. It houses the library collection of books, papers, and periodicals, etc., and allows the individual student to study any of these, at any time. It also serves, and this is most important, as a haven of relative peace and quiet, where a student can do individual study away from the classroom atmosphere. Finally, it must in this case, serve as an area for general "getting together" as a student commonroom. Students of different disciplines, following different courses, should be able to meet in an area away from bag lunches, coffee cups and the general scraping of chairs, the busy movement of the cafeteria. The library/common area can be used for meetings, seminar and group discussions, slide or movie shows or official college gatherings. It is very much the place where the President, his staff and the students can get together.

Conestoga, *Conestoga College One*

Perhaps the most important is the role of learning. It will rest primarily with the student. One way of accomplishing this is to allocate periods for library use, research and independent study. Courses will be conducted in such a way as to direct the students to the library, e.g., problems will be given that can only be answered by consulting a number of texts to obtain more than one view. Another way of transferring learning responsibility to the student is to use the group learning technique when students and masters work together to get the answers to various problems. In this environment the master will not be an authorative source of all knowledge but will be a resource man looked to for guidance and support.

Confederation, *Master Plan*

This College will relate to people as adults and the importance of the individual as a unique human being will be recognized. Each student and each employee in the College is to be regarded as a human being entitled to his share of human dignity. Of special importance in a rapidly changing world is the development of the inquiring creative mind and the self-directive individual.

Learning how to learn and continue the learning process will be fundamental to Durham's College's teachings. Above all, the use of library resources as the reservoir for accumulated knowledge, understanding and ideas will be cultivated and implanted in each student's experience and awareness.

Durham, *Educational Philosophy*

The College will seek to provide, through research and the practical application of knowledge, a Resource Centre for continued in-depth studies of its Region. It will co-operate in this endeavour with other regional centres of higher education such as the University of Western Ontario and the Western Ontario Agricultural School at Ridgetown. Just as any course content and the learning process must have practical application, so must the College have practical benefit and application to its Region. Knowledge of the Lake Erie Region is still fragmented and much essential data needs to be researched, collected and collated. In co-operation with the regional centres of higher education, the College will provide a feed-back to its Region by progressively developing a Resource Centre for data pertinent to the Lake Erie Region. Through staff research and student application, it will become a Data Bank for a vast variety of information of its area. As such it will be of significant benefit in the pursuit of community-wide socio-economic development.

Fanshawe, *Educational Prospectus*

The Role of the Resource Centre and the CAAT in the Community

The resource centre shall provide for the storage and distribution of resource materials necessary for the student to complete his program within the College through assignments or projects. Resources will be available for the student to carry on through continuing education whether formal or informal the interests awakened during his time at the College. This will apply to day school and continuing education students. In serving this student need, it is planned that indirectly the faculty, community and industry will be served in a similar manner. The emphasis on resources shall be those which are not readily available through other sources in the Niagara area.

Niagara, *Resource Centre Architectural Design Instructions*

The Learning Centre — as we are now calling it — must be a vital thing, accessible to all and easily used. The Learning Centre is envisioned as serving two functions: first, its historic role as the source of information and enrichment, and secondly, as an actual source of instruction. We must revise our concept of what a learning resource is. To books and pamphlets we must add a long list of tapes, records, films, programmed texts and other media.

Sheridan, *Library Report*

We would suggest that over the next fifteen years, our whole educational approach will have to come to terms with some significant shifts in emphasis.
One of these is the concept of student "self-pacing". By self-pacing is generally meant leaving students to work independently, and at their own rate of speed, on the bulk of their studies. It is the reverse of the "convoy system", which sees groups of students moving through the educational experience at the same time and in the same way.

Sir Sandford Fleming, *Master Plan*

By definition there is no such thing as a typical community college because a college evolves in response to the needs of a particular community, its people, and the geographic area it is intended to serve. The discussions of the University and Community Colleges Library Group at the 1968 meeting of the Ontario Library Association stressed the role of the college resource centre in fulfilling the CAATs' mandate: "The philosophy of community colleges is to serve community needs. Limits cannot be defined but service will be extended to meet community requirements."
The group recommended that:

- The community college should back the public library by catering to industry, business, welfare services, etc.
- The community college library should be a bridge between public and university libraries and would be an excellent point of contact in that capacity.

The Resource Centre and Regional Libraries

At the most fundamental level of community relations, the college should avoid imposing upon the existing library facilities within the community by providing the materials their students and faculty require and by gearing their hours to the demands of their users. The public library program is already strained by the influx of public school students because of the increase in self-education projects. If there are other specialized libraries in the community, they will not be structured to provide for the CAAT student, who tends to be inexperienced in library usage, or to supply his type of information needs. The CAAT needs to work with the public library system, but it cannot serve as a public library. The typical community college library is not yet able to adequately meet the needs of its own population. The public library serves the everyday needs of the community through the circulation of fiction and non-fiction books, the answering of simple reference questions, and the provision of a service for children.

The CAAT resource centre, on the other hand, is geared to a more specialized role. Especially in smaller communities, the colleges of applied arts and technology may play a significant role in the formation of regional reference centres. These centres were originally proposed for Ontario in 1964 by Peter Mutchler, Chief Librarian of the Fort William Public Library. He defined a regional reference centre as "a large collection of books and other materials administered by a trained staff located in the educational, cultural or training centre of a designated area. It will consist of a collection designed for serious informational use." The college library would probably not be the regional reference centre, but one of the major contributors of specialized information to the system. In turn, the regional system could provide for some of the colleges' information needs and provide access to the provincial and national information networks.

The Resource Centre and Local Industry

The CAAT resource centre's major role in serving the community probably lies in providing for the information needs of local industry. The college program of courses will have evolved to some extent from a study of the employment skills required by the community. Therefore the information needs of the college's programs of study and of local industry should be compatible. Through the inter-library relationship developing from the Bibliocentre (described on page 14), the CAATs will be able to draw upon the combined resources of the college system to provide information to local industry. The idea of a college resource centre serving the needs of business cuts across the traditional organizational concept of library types (public, school, college, university, government, etc.) to consider libraries in terms of user classifications.

Studies show that the businessman regards libraries as serving the needs of children, students, and fiction readers, although the businessman considers them to be "good for the community" he does not find them "hard-headed and practical", that is, compatible with his needs. Yet it is obvious that there are numerous applications where a resource centre can prove very useful and profitable to the businessman. Highly technical industries continually need to have access to the latest available data relating to their speciality. Other industries can use more generalized information about business trends, marketing research, census figures, and so forth. A survey conducted by Arthur D. Little Inc. for New York State showed that "at present the primary sources of information for most businessmen, engineers, etc., are trade magazines, trade associations, and word of mouth communications. Public libraries have played a very small role in supplying information to these persons, since standard book materials are not always adequate." The CAAT collections of information, recorded in a wide variety of media are more closely tailored to the information requirements of commerce than the traditional types of libraries. The CAATs can respond to the information-transfer needs of the business community in the reactive or active mode. The reactive mode, where the information source simply reacts to a request for information, can probably be easily handled by the CAAT library. The active mode, in which an agent informs the potential user that the information which may be of use to him exists, requires that the staff of the CAAT resource centre become thoroughly familiar with the business and industrial community.

During the 1960s in the United States, industry increasingly made use of library resource materials because they were more easily available. Photo-copying has greatly reduced the need for library loan or room use and thereby has revolutionized the relationship between libraries and industry. The widening use of computers, remote terminals, microfilm coded for retrieval, remote viewing, and facsimile transmission may link industrial and academic communities into an information-transfer network. A prototype for such a network exists in San Diego where a college, a university, a government laboratory, a public library, and three industrial firms associated. The intent is to enhance the resources of the area by avoiding unnecessary duplication of expensive publications and to provide a service whereby the inquirer is directed to the best information source.

Physical Implications of this Liaison with the Community

As a consequence of the increased industrial-commercial use of academic information sources there is a growing feeling that the costs of the service should somehow be reimbursed by industry. This formalization of the interrelationship through programs of membership or deposit accounts has stimulated the development of active modes in the information-transfer program. The CAAT resource centre's relationship to industry and the community may have physical implications in the area of electronics. The users are far more apt to dial the library than to arrive in person — Telex, television, or computers will provide the interface. The potential for electronic diversification, both in transmission and in reception, must be a basic design component.

The resource centre should be readily accessible to community users and to students and staff, whenever it is necessary to close the rest of the buildings. It should be located on the ground floor, on a major pedestrian route, so that it is visible at all times, to all passers-by. Because the resource centre is not intended to double as a public library, it need not be positioned within the campus to attract the general public. The primary locational concern should be to attract the full range of students. It is advisable, however, that the location be convenient for non-college users.

Niagara College: View from corridor into Resource Centre

Model of Information Transfer Process: Reactive Mode

*adapted from *the 3r's program: meeting industry's informational needs*

Action	Agent
1 Perceive Need for Information The user—businessman, engineer, scientist, etc.—has defined his need for specific information (such as a legal reference or mathematical formula) or he perceives that generalized information would be useful to him in solving a particular problem.	**User**
2 Judge Probability of Success The user decides whether it is worth the trouble to get the information. At this stage many users decide not to try to locate the information for many real or imagined reasons, such as: they don't know where to look for it; they think that the available source may not have it; it is too much trouble.	**User**
3 Initiate Request to Intermediary and Identify Relevant Information Sources The user, having decided to pursue the information, goes to a person (librarian, specialist, etc.) to request information. The librarian acts as a bridge between the user and the place where information is stored by assisting the user in translating his requirements into terms that are meaningful to the information repository. This stop can be circumvented if the user has adequately defined his needs in which case he can directly use the catalogues or other locating devices.	
4 Locate Relevant Information Sources The intermediary attempts to determine the physical location of the information or material.	**Intermediary**
5 Request Relevant Information A request for the information is made to the holder of the information.	**Intermediary**
6 Transfer Relevant Information The information or material is physically transferred to the user who initiated the request through an intermediary.	**Holder**

Model of Information Transfer Process: Active Mode

Action	Agent
1 Promote New Technical Development Report of new or not generally known development or theory is published.	**Engineers and Scientists**
2 Determine Applicability Before the new development can be actively promoted to business and industry someone must screen the development to identify it and decide where is applicable.	**Information Centre**
3 Inform Business and Industry Having determined the applicability of the information, the information centre must take steps to inform potential users of the existence of the information.	**Information Centre**
4 Perceive Need for Information Having been informed of the existence of the information, the user should perceive his need for the information.	**User**
5 Initiate Reactive Mode The establishment of a perceived need initiates the reactive mode described above.	**User, Information Centre, Holder**

The College Bibliocentre

The College Bibliocentre was established as an agency which would co-ordinate and centralize certain library functions for all twenty community colleges. Since its inception, the Bibliocentre has gradually taken on more functions — it will eventually co-ordinate the growth of a total information resource. The Bibliocentre has important implications for the individual resource centres in terms of space, and the number of people involved in technical operations.

The Major Functions of the Bibliocentre

1 Selection
The individual college collection is the most important component of the entire college library system. The Bibliocentre can act as a central organization to advise each particular college on the recorded and published material available to meet specific requirements. In this way, the Bibliocentre provides a selective dissemination service for college staff, with the co-operation of publishers and distributors.

The Bibliocentre includes a central exhibition which displays new material of interest not only to colleges, but to other educational bodies as well. It is hoped that this will develop into a travelling exhibit which will circulate to all campuses. At present, special subject displays are mounted on request at a college if the display supports a meeting of subject teachers from a number of colleges.

2 Audio-visual Media
The Bibliocentre will co-ordinate the production of audio-visual material in the colleges. Its staff can negotiate directly with the various organizations which deal with media that may be useful to the colleges. A listing of programs suitable for exchange can be built up, and a co-ordinated system for cataloguing and retrieving this material is being developed.

3 Acquisition
This is the principal business function of the Bibliocentre: to act as the central purchasing agent for the colleges, first for print material, and now for both print and non-print material. This procedure should have numerous advantages: it will save money in the form of discounts and reduce technical staff in each library, as well as the space which this staff would require. Centralized acquisition should simplify accounting procedures and ultimately reduce time delay between request and receipt of a book. Already, 54 per cent of the items received can be processed and shipped in ten days. Rush orders can be handled in twenty-four hours. The real problem is the time it takes to obtain a book from a supplier: the average time is nearly six weeks. However, a systematized acquisition procedure should also be able to pinpoint transactions that repeatedly consume extended periods of time and overcome such bottlenecks.

4 Cataloguing and Processing
The Bibliocentre is now cataloguing 80 per cent of the college acquisitions. The advantages of a co-ordinated acquisition and processing procedure are numerous. Centralized cataloguing will produce significant savings and eliminate much of the tedious routine work in the individual libraries.

Example 1
The Cost of Duplication
54 per cent of items handled last year were duplicates. $4.18 is the cost of cataloguing each title — thus there are considerable savings if this is done only once.

A further advantage of centralization is that it lends itself readily to a system of computer cataloguing and circulation. This has numerous far-reaching implications.

- only one keypunch input is needed to produce a complete record;
- there is a reduction in technical services and space;
- access to the collection can be dispersed throughout a campus — as the catalogue can be distributed anywhere;
- there are network capabilities — access to other machine-readable catalogues.

Example 2
The Cost of Manual Cataloguing
A collection of 40,000 books and 240,000 cards each year adds 11,000 books or 66,000 cards. This will require seven full-time technicians for the college system every year.

5 Specialized Collections
Some colleges at present have demands for stacks of material to support course requirements which they do not need to house within their college throughout the year. If such collections were stored centrally, it would be possible to make them available to other colleges and thereby avoid duplicating purchases. This central collection would include non-book materials which are often very expensive. By sharing the collection, colleges would be able to justify the acquisition of outstanding items which are too expensive for individual ownership (e.g., Kenneth Clark's *Civilization* series of films). Materials for short courses — textbooks, teaching aids, course outlines — could be shared.

6 Reproduction
The Bibliocentre will require microreading and in-plant print facilities. Such services could be exploited to the advantage of the colleges. A future function of the Centre could be the establishment of a Colleges of Applied Arts Publishing Press.

7 Centralized Information Storage
By pooling the professional labour force of the individual college resource and computing centres and by utilizing modern technology, it will be possible for the colleges to feed into the centre both textual and illustrative material which in time can be so organized that it is easy to retrieve whole documents for student and staff projects. By sharing input responsibility, users will have access to considerably more information than they could accumulate separately. This centralized information storehouse could also develop into a service for Ontario business and industry

8 Development of Professional Standards
At present there are no standards for community-college resource centres in Canada. When trying to evaluate the appropriate type and size of collections, administrators are forced to turn to the American Library Association Standards. The Ontario colleges of applied arts and technology are a special type of institution and will have to formulate a unique set of guidelines. The Bibliocentre can provide a centre for the exchange of information and expertise, gradually evolving a suitable set of standards for the resource centres.

The Resource Centre as Part of an Information Network

The idea of a communications network has significant implications for the colleges. It means that information can be shared rather than duplicated. Thus library space in the colleges will be able to remain at a manageable size, without huge areas devoted to filing and storage. Although it will be some time before such a system is developed to its full potential, its characteristics should be clearly understood.

For example, it would now be feasible to establish a program that could ultimately provide convenient access to all hardware and software at all of the colleges. This would require a comprehensive catalogue, describing programs, equipment, and systems. The "Campus 2 Project" now being undertaken is already developing a space inventory. In fact, if a full program were formulated first, this inventory could form the basis of an on-line Directory of Resources.

Inter-Library Communications
Sophisticated systems are quickly coming into general use. These include teletype and telecommunications with different signal-carrying capacity.

1 Teletype
Teletype is widely accepted in libraries today because it operates at the speed of the telephone with the authority of the printed word. Teletype has numerous uses. It is commonly used for inter-library loans, making it possible for a library's holdings to be enlarged on a reciprocal basis. It can also be used for general communication between libraries, accommodating reference questions and various services. These uses are all applicable to a college resource centre.

Probably the most important use of the telex in the future will be to serve as the primary communications medium of the information network. The service can instantly contact a user anywhere in the world. There is a classified teletype directory of library subscribers in Canada and the United States. Thus it would be possible for any participant in the network to communicate inquiries to sources beyond the community college network. The service is economical. Not only are basic charges reasonable, but the machine leaves a written message without requiring a receiver or the courtesies of telephone conversation.

Example
Comparison of Telex and Telephone:
Monthly rent for telex machine: $45.00
Toronto to Barrie:
Telephone: $.55 for 3 minutes
Telex: $.15 for 66 words per minute

2 Telecommunications
Telecommunications is the exchange of information by electrical transmission over great distances. Today telecommunication systems must be designed to carry three types of signals:

a audio — both human speech and recorded tones;

b digital — data, generated by computers or other machines, which have been coded in the binary language for transmission as electrical pulses;

c video — information transmitted by means of light elements that have been changed into small discrete bits of information by TV recorders, facsimile, canners, and so forth.

Each type of signal is associated with the channel of communication that will carry it most efficiently. The numerical difference between the highest frequency and the lowest frequency handled by a communication channel is the band-width. This determines the signal-carrying capacity of the communication channel in hertz. Thus, the broader the band, the greater the signal-transmission rate. The telephone system handles the narrow band width audio signal very effectively, but the time required to squeeze the tens of thousands of bits that make up a television picture or computer message through the narrow bank of the telephone system depletes the capacity of the network. The increasing business and industrial use of the telephone lines to transmit computer and TV messages is sorely taxing the entire North American telephone network.

Within the narrow band, the telephone is a means of communication without equal. It is simple, quick, reliable, accurate, economical, and provides great geographic flexibility. Frequently, the telephone, coupled with the teletypewriter, satisfies the communication requirements of an information system.

The coaxial cable is a carrier which can handle broad band-width exchanges. It is an extension of the familiar telephone line network, but includes a new cable which has a vastly superior message-carrying capacity (50,000 times greater than that provided by a telephone cable). Coaxial cables are rapidly being installed across Ontario, connecting with homes and schools for the reception of cable TV. This developing information system is being used by the colleges for the production and transmission of television programs, but its information network potential has not yet been fully realized. Eventually it will lead to home reception of electronic facsimile of books, computer information from data banks, individual instruction from colleges, and a whole variety of educational materials.

Part 3 Standards for Determining Quantities and Sizes

Initially, CAAT libraries aimed for a collection of approximately 20,000 volumes excluding duplicates and textbooks on the primary campus. Collections on other campuses vary greatly with the type of program offered. The minimum standard appears to be forty volumes per full-time or equivalent student up to 5,000 students.

It now appears that the primary collection in most college libraries will comprise approximately 50,000 volumes. The size of the outlying collections is determined by the character of the relationship between the satellite libraries. Colleges where there are several campuses of nearly equal size separated by a considerable distance are developing multiple primary collections. In colleges where there is definitely a primary site, nearby satellites can integrate their collections with the primary one.

The size and type of collection will be determined by:

- the basic educational philosophy of the college;
- the relationship of the college campuses;
- the availability of alternate collections within the community.

Although various groups of CAAT representatives have been studying the problem of standards for collections, no recommendations have yet been made. The following standards are supplied as guidelines for defining the parameters of the design problem.

A.L.A. Standards for Junior College Libraries, 1960

2-year college
1,000 full-time equivalent students
20,000 volumes exclusive of textbooks and duplicates

2-year college
1,000 full-time equivalent students
broad curriculum offerings
40,000 to 60,000 volumes

2-year college for every
500 students beyond
1,000 F.T.E. students
Increase collection by 5,000 volumes

A.L.A. Standard for College Libraries, 1959

Small 4-year college
up to 600 students
50,000 volumes

for every additional 200 students
10,000 volumes
Part-time and extension students should be equated into full-time equivalents.

Ontario Department of Education Recommendations for Secondary Schools

500 students
5,000 volumes

2,000 students
20,000 volumes
minimum of 10 books per student

A.L.A. and N.E.A. Standards for Schools, 1969

250 students
6,000 to 10,000 volumes exclusive of textbooks and faculty requirements or 20 volumes per student, whichever is greater.

Existing Collections

Name of College	Volume per Student
Campion College, University of Saskatchewan	136.0
Halifax Reg. Voc. School	26.7
Selkirk College	25.5
Red Deer Jr. College	10.3
Mt. Royal Jr. College	10.1
St. Lawrence College	10
Centennial College	9.3
Algonquin College	8.4
Saskatoon Institute of Applied Arts & Sciences	7.7
College of Trades and Technology, Newfoundland	6.6
Niagara College	6.6
British Columbia Institute of Technology	6
Southern Alberta Institute of Technology	6
Ryerson Polytechnical Institute	6

From Ryerson Library Planning Report, December 1969.

Non-Print Material

The study of media as a phenomenon in its own right has shown that the type of medium affects the message, controls what is learned, and establishes the learning environment.

Audio-visual materials not only provide an alternative to the conventional formats of information-transfer, but also greatly expand the perceptual-experience range previously available. Images, motion, and sound can bring a new dimension to the learning experience. Today's resource centre must provide a complete range of information formats if it is to fulfill its function.

The non-print portion of resource-centre collections is the dynamic area for which standards have yet to be developed, however, there is a shortage of ready-made software materials on a number of subjects. The size of the collection at any particular college probably relates more directly to the enthusiasm and imagination of the resource director than to any definite criteria. Formal guidelines for such material are rare.

1 School Media Programs (1969)
Prepared by the American Library Association and the National Educational Association
(pp. 30-3, excluding professional material for faculty)

Filmstrips
500-1,000 titles, representing 1,500 prints or 3 prints per pupil, whichever is greater (the number of titles to be increased in larger collections).

8mm films
1½ films per student with at least 500 titles supplemented by duplicates.

16mm films
Acquisition of 16mm film at the college level would depend upon the extent and frequency of use of individual film titles in the school and upon the availability of a system media centre and its collection of film resources.
Recommended: access to a minimum of 300 titles supplemented by duplicates and rentals.

Tape and disc recordings
1,000-2,000 titles representing 3,000 records or tapes or 6 per student, whichever is greater (the number of titles to be increased in larger collections).

Slides
2,000 (including all sizes of slides)

Transparencies
2,000 transparencies, plus a selection of subject matter masters.

2 Association of Michigan Junior and Community Colleges Committee report

	Basic Collection	Advanced Collection
16mm films	500 college level titles plus 2 per instructor over 500. In addition, teacher education institutions should have the basic film collection recommended for elementary and secondary schools (1,000) or an average of 3 film rentals per instructor per course.	1,000 college level titles plus 3 per instructor over 500, plus elementary and secondary basic collection in teacher education institutions. or an average of 5 film rentals per instructor per course.
Filmstrips	2,000 titles with duplicates as needed	3,000 titles with duplicates as needed
Recordings, Tape and Disc (not electronic lab materials)	1,000	2,000

User Space Standards

Seating Capacity
The number of student seats within the resource centre is influenced by:

1 the basic approach to education ranging from "spoon-feeding" to independent study;

2 the type of courses offered within the college campus;

3 the provision of private study rooms outside the resource centre;

4 the percentage of full-time students;

5 the proximity of the students' place of residence.

There is general agreement that at the university level library seating should be provided for not less than 25 per cent of the undergraduate student population.

The Downes Committee report recommends that this standard be applied to colleges as well. *The AASL-DAVI Standards for Secondary Schools* combined libraries and media centres and assumes a seating capacity of between 15 and 33 per cent. Most CAATs report that they intend to provide seating for at least 25 per cent of the full-time equivalent student population. User-capacity must be evaluated in light of the type of courses taught on campus, the availability of suitable study space elsewhere on campus, enrolment growth, and the proximity of the students' residence.

Space should also be calculated for use by the academic staff. A recommendation for seating of 10 to 15 per cent of the staff is common.

Economic standards

Seating Types
The CAAT resource centre should provide for more group work and informal seating than is found in university libraries. Probably no more than one third of the seats need to be study carrels, with one third informal seating and one third divided between two, four, and six-person tables. Allow 30 sq. ft. for each carrel station, 25 sq. ft. for each table station, and 15 sq. ft. for each informal station.

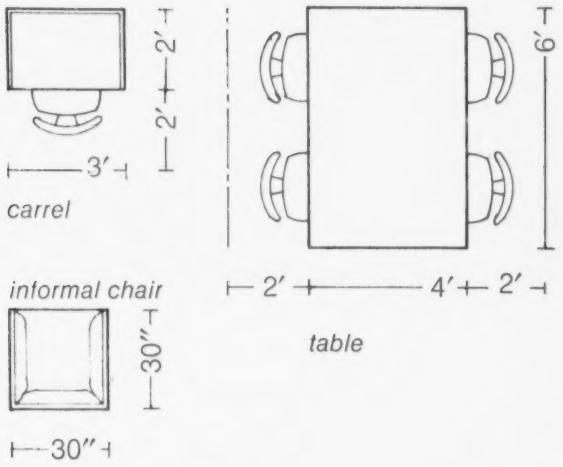
Staff Space Standards
The amount of space provided for the resource centre staff will relate to the type of services performed and the personnel involved. The following rules of thumb may be useful at the preliminary space-estimating stage before the design has been considered in detail.

Senior professional staff *150-250 sq. ft. per person*

Professional technical staff *100-150 sq. ft. per person*

Clerical staff *50-80 sq. ft. per person*

The Ontario Library Association survey supports the recommendation of the Committee of the Canadian Association of College and University Libraries included in their study, *Forecast of the Cost of Academic Library Services in Canada, 1965-1975:*
"that 10% of the institutional operating budget be considered a minimum for ordinary operation and development of established libraries in universities with well established curricula during the next ten years".



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1 Study carrels with independent lighting
McLaughlin Library, University of Guelph

2 Study table
Centennial College Resource Centre

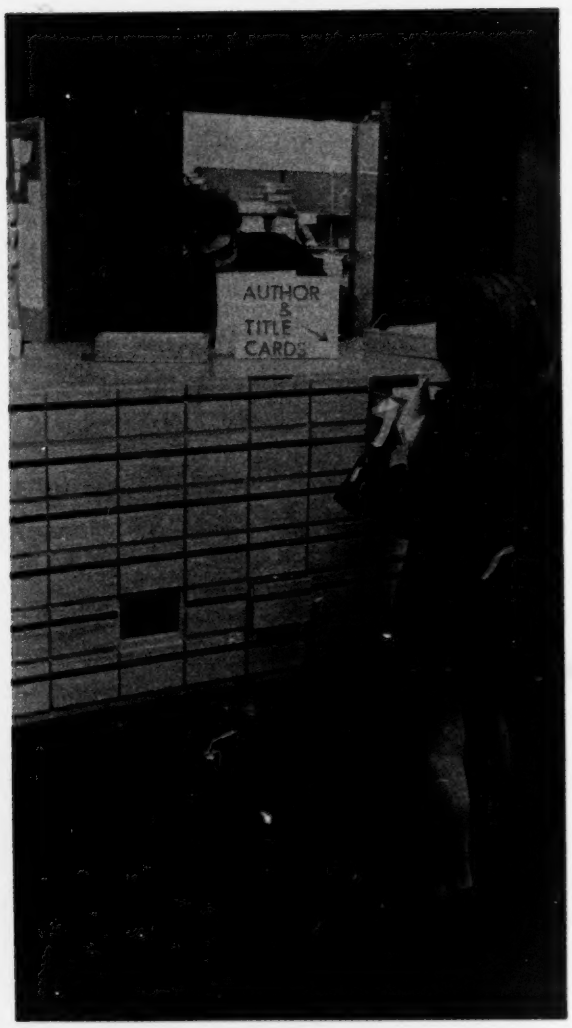
3 Librarian's Office
Centennial College Resource Centre

4 Informal seating in browsing area
McLauglin Library

5 Staff Area
Seneca College Resource Centre

Part 4
An Inventory of Equipment

Card Catalogue
Centennial College Resource Centre



Card Catalogue
The card catalogue is the traditional form of catalogue and is the type presently used by all of the colleges of applied arts and technology. However, it may be phased out as the Bibliocentre develops.

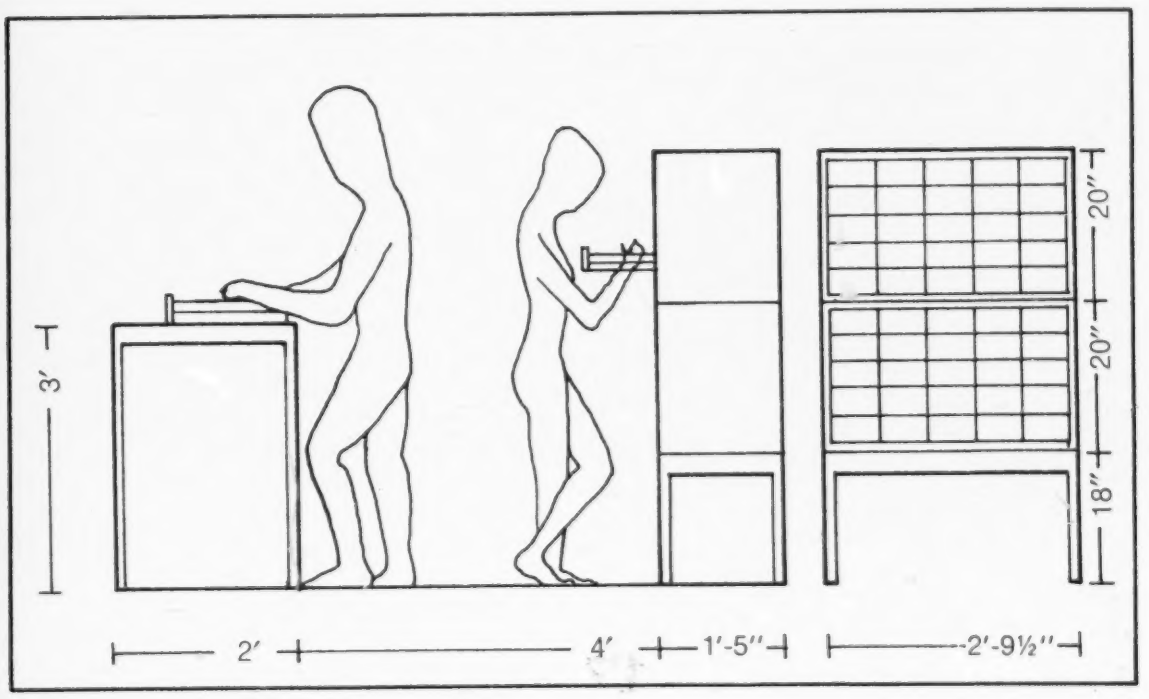
The number of catalogue drawers required is determined by the number of books, films, tapes, and other materials in the collection. An average of five cards is made for each book title and four cards for each audio-visual item. A drawer 17 inches deep has a capacity of 1,000 catalogue cards with their guide cards and a follower block, while a 19-inch unit will accommodate 1,150 cards. Drawers should be filled to allow for growth because it is expensive to shift cards. The standard catalogue unit is six drawers high. Units may be stacked if space is limited or the collection large. Usually catalogue units are free-standing, but they may be built into bookstacks, counters, etc. The bottom drawer should be at least 16 inches from the floor to allow for convenient use.

Cases should be made from top-quality wood that has been kiln-dried to prevent distortion and densified to increase the strength. Metal cases cost considerably less, but they are noisier to use and far more subject to wear and tear in use.

Sliding shelves, counter tops, or tables are required for consultation. Usually these are standing height, 40-42 inches is recommended. Allow sufficient space behind the case units so other users can pass behind. A distance of six feet should be adequate.

The Computerized Catalogue
A number of academic libraries are experimenting with the use of computerized card catalogues. The catalogue is available to resource-centre users in book form, thus eliminating the costly and space-consuming special-drawer units. The advantage to library users is that the book-type catalogue can be used anywhere within the resource centre or indeed at home. Such systems can greatly simplify the staff chores of ordering, cataloguing, making fiscal reports, creating circulation systems, and so forth. One of the benefits of the Bibliocentre should be the introduction of a computerized catalogue throughout the CAAT system.

"It is too early to predict what effect the mechanization of the card catalogue will have, at least on a university library, since experiments with book catalogues for large collections have not yet proved feasible — or economic. Book catalogues for specific portions of the collection, however, are already in use on some campuses, and changes in the pattern of card catalogue use and in service and space requirements near the collection are evident. With the availability of a variety of specialized book catalogues, or direct access terminals to the computer-stored catalogue, more assistance in the use of such tools may be required, and the space now taken up by banks of catalogue cabinets may be allocated to library staff assisting students and faculty in the use of book catalogues or terminals."
Langmead and Beckman, *New Library Design*, p. 33



Books

1 Description

"The book in its present form will be around for a long time yet. It is portable, economical, unbreakable, easy to scan and a great time-saver until such time as many of the problems of machine readable information are solved."

Speech given in Hamilton, Ontario, by R. M. Blackburn, Head Librarian of the University of Toronto, 1968.

Paperback Books

Paperback books can be used fourteen to sixteen times. If the binding is of good quality, it may be possible to extend the life to twenty readings. The cost of rebinding is generally not warranted. Because of the limited life of the material, paperbacks usually are not part of the permanent collection. However, paperback books can have a useful role to play in a CAAT library as special browsing collections. This type of book is familiar to the new library user, and special displays and lending areas near the entrance can be used effectively to attract students. Because of the lower cost and limited life of the material, security is not a consideration. Some colleges in the United States have "seeded" lounge areas with paperbacks to encourage the students' general reading habits. Paperbacks are normally stored on racks and shelves similar to those used in commercial bookstores, which are designed to display the covers to attract readers.

1 Paperback rack

2 Stacks are stabilized by channels running transversly to ranges of stacks, attached to shelving uprights. These are used to hang lights in this case.
Humber College Resource Centre.

1

2 Storage

Shelving is a fundamental component of library design, and the costs related to shelving comprise a significant percentage of the total construction budget.

a Materials

Bookstack-shelving may be made of timber or wood or a combination of both. Timber-shelving is frequently preferred in reading-room layouts because of the belief that it is aesthetically more pleasing. It can be economically competitive when mass-produced. It can also be easily adapted to particular non-standard shelving problems. Steel shelving is generally lower in cost and therefore is used almost exclusively in stack and storage areas. Better looking designs are available at slightly more cost than strictly utilitarian models.

b Stack Types

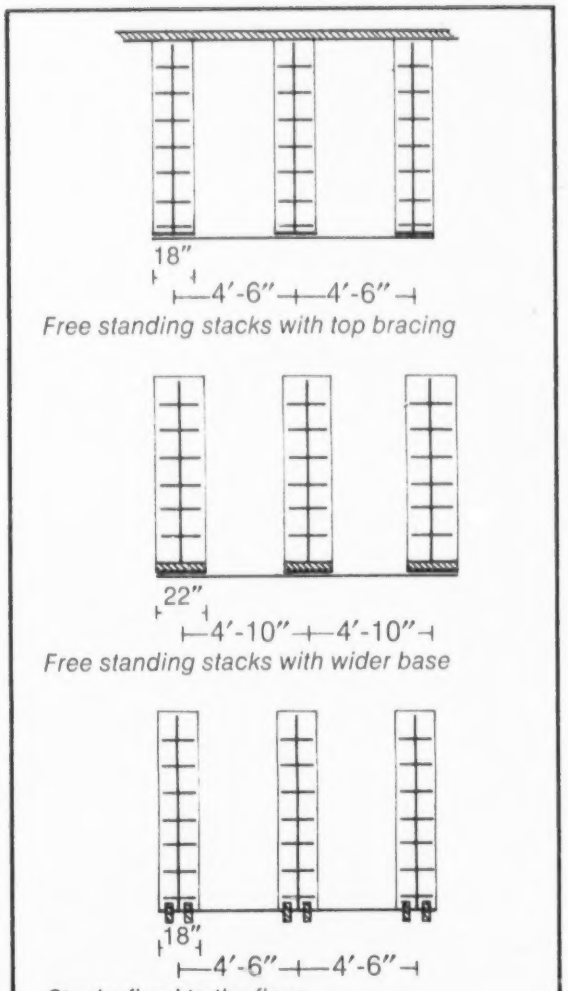
Stacks may be single or double-sided, free-standing or fixed. Single-sided stacks are fixed to the wall or some other surface. The stability of free-standing stacks should be considered. There have been instances when free-standing ranges have overturned and knocked down adjacent stacks as well. The possibility of serious injury if such a calamity occurred is obviously great. Manufacturers' claims regarding stability should be carefully evaluated and not accepted at face value. Free-standing ranges will be stable if

- the base is a third greater than the shelf dimensions; (The wider base requires a greater distance between ranges and, consequently, a reduction in the storage capacity of a given area.)
- the base is the same dimension as the shelving above, but is positively fixed to the structural floor;
- stability is provided by channels running transversely to ranges of stacks and attached to shelving uprights, restrained at ends by connections to the building structure.

Wall-mounted stacks may be fixed directly to the wall surface. Stacks may be fixed in rooms of normal height by running the shelving uprights from the floor to the ceiling.

c Shelving Types

Standard shelving is constructed with solid uprights extending the full depth of the shelving with the base and top shelf fixed. Intermediate shelves are supported either by slots in the uprights or by means of lugs inserted in perforations in the uprights. Stacks are braced vertically with diagonal ties, or by means of solid panel backs, or with a central dividing panel in double-sided shelving. Bracket shelving is extremely adaptable, allowing a variety



Free standing stacks with top bracing

Free standing stacks with wider base

Stacks fixed to the floor.

2

of shelf types to be used and even different shelf-depths within the same range. Bracket shelving consists of tubular steel uprights, perforated to receive cantilever brackets. It may be double- or single-sided, wall-mounted, fixed, or free-standing. Uprights are usually spaced out with horizontal rails; diagonal bracing provides additional stability.

d Shelving Heights
Metcalf recommends the use of a stack unit 7′ 6″ high with the top shelf 6′ 4″ from the floor. These dimensions provide for a 4″ base and shelves at 12″ centres. The top shelf can be reached by a person who is 5′ tall. Studies have shown that 90 per cent of all books are no more than 11″ tall. If the shelves are placed on 12″ centres and the shelves are not over ¾″ thick, an 11″ book can slide in between.

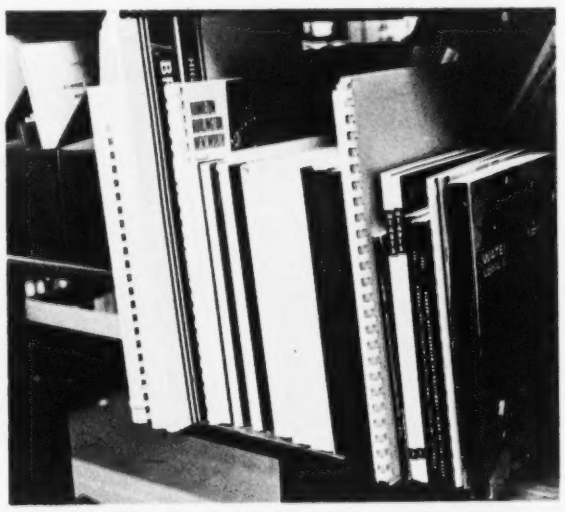
e Capacity
The type of items in the collection will determine the capacity of the stack units. Shelves should not be more than two-thirds full for ease of use and to prevent damage to the bindings. For many libraries the rule of thumb of 125 volumes per section is adopted for planning. This figure incorporates the two-thirds capacity factor. A more accurate estimate can be arrived at by using the figures shown in Table on next page.

f Arrangements of Ranges
Shelf depth, aisle width, and range length should be studied together with the structural bay size. Thirty-six-inch wide aisles are usually considered standard for open-access collections, but this may be reduced several inches to arrive at an economical modular arrangement. In heavily used areas, the aisles should be increased to 40″ or 42″. Aisles must be wide enough so that

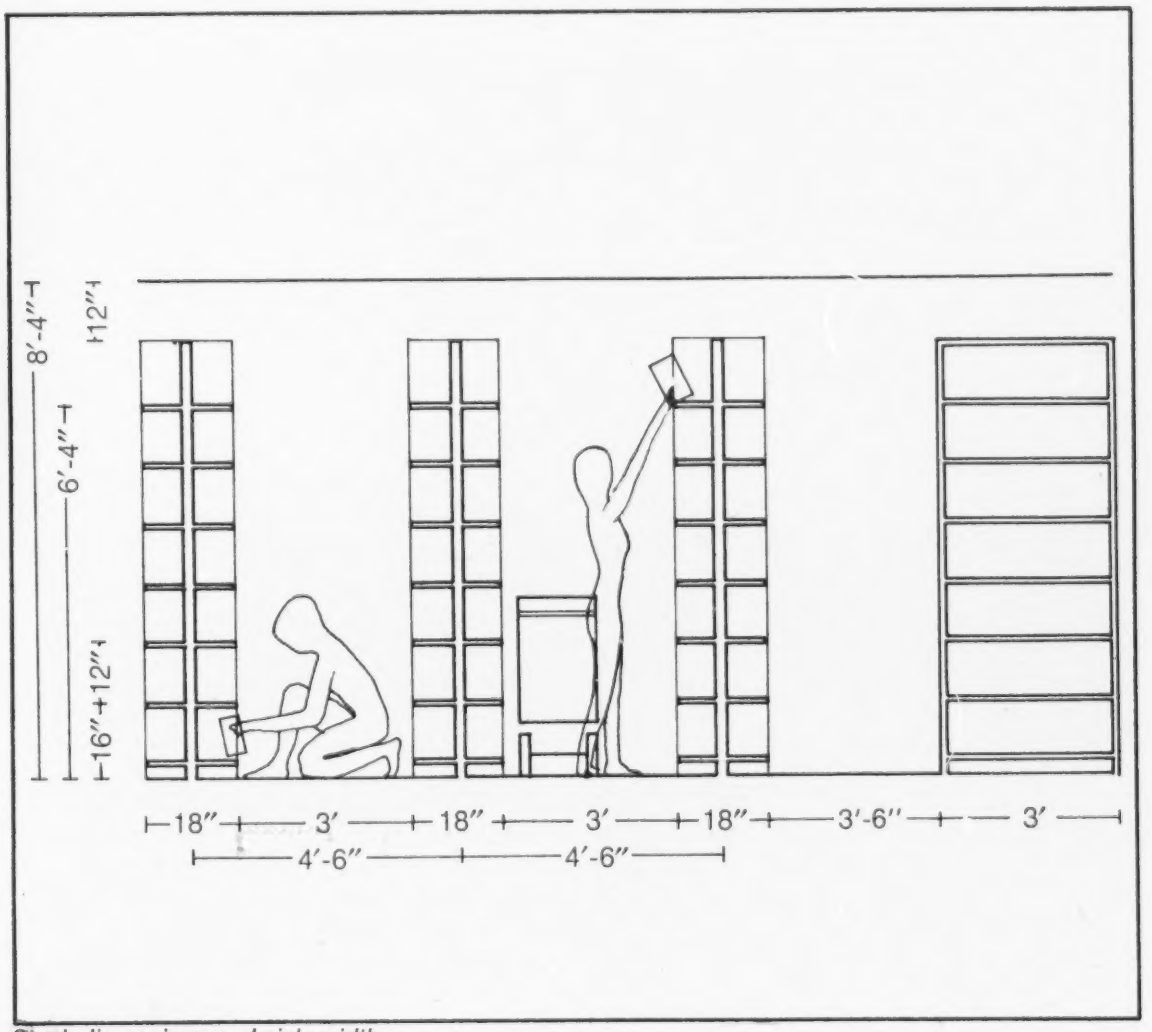
- adequate light can fall on the bottom shelves;
- two users can pass one another;
- a reader can squat down to read the labels on the books on the bottom shelf;
- a book truck can be wheeled down the aisle.

In the community college, where large stack collections necessitating the most economical arrangement are not anticipated, it is desirable to allow sufficient space between ranges for handicapped users. Range length should also reflect the degree of use. In general, the more heavily used the area, the shorter the range. Fifteen feet can be used as a rule-of-thumb length in the initial planning stage.

g Flexibility
Most CAAT libraries have been relocated within the expanding facilities at least once so far during their campus development. Some colleges have found that despite manufacturers' claims that their stack units are relocatable, the repeated movement of the stacks has caused deterioration of units. Wooden units seem to be more adversely affected than steel stacks. The weight of the stack units will cause serious deterioration of the finished flooring: resilient floor coverings will be permanently damaged. It is advisable to budget funds for replacing the floor covering when moving stacks. If the floor covering is replaced, there is no need to be concerned if the stacks are initially anchored to the structural floor.



Typical items on a shelf



Stack dimensions and aisle width

Shelf Capacity
1 library bookcase 6′ 6″ high by 3′ 0″ wide can hold 6 shelves of books or
5 shelves of periodicals

Type of material
Length of shelving required
100 books 12′
100 scientific or technical books 9.5′ - 16′
100 volumes of periodicals 16′
100 reports 1′ to 2′ of suspended filing

Volumes per linear foot of shelving

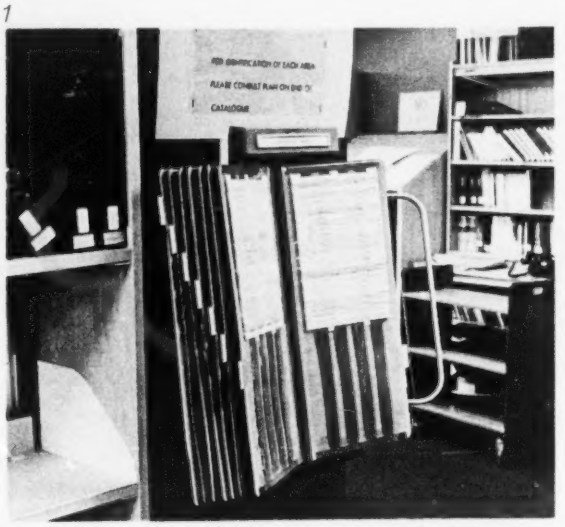
Subject	Volumes per foot of shelving	Volumes per single-faced section (7′-6″ high x 3′-0″ wide)
Fiction	8	168
Non-fiction (circulating)	8	168
Economics	8	168
General literature	7	147
History	7	147
Art (excluding folios)	7	147
Technical	6	126
Scientific	6	126
Public documents	5	105
Bound periodicals	5	105

Book heights (academic libraries)		Book depths (academic libraries)	
8″ or less	25%	5″ or less	25%
9″ or less	54%	6″ or less	54%
10″ or less	79%	7″ or less	79%
11″ or less	90%	8″ or less	90%
12″ or less	94%	9″ or less	94%
13″ or less	97%	10″ or less	97%
Over 13″	3%	Over 10″	3%

1 Periodical index
2 Newspapers on microfilm
3 Periodical display rack

Centennial College Resource Centre

1



Periodicals

1 Description
Periodicals provide more up-to-date information than books, especially in technological areas. As a consequence the college libraries usually have extensive collections of periodicals. It is not unusual to find several hundred different periodicals in the collection. At least one library subscribes to 500 periodicals and newspapers. If the college does subscribe to a number of periodicals, an index is required; this is usually a strip index, which may be fixed to a wall or other vertical support.

2 Storage

a Display Rack
Current issues of periodicals are usually stored on a display rack so that the library user is encouraged to browse. Periodicals may be arranged on the shelves alongside books on the same subject or in a sequence physically separate from the books. Some models of display racks provide storage space for previous issues behind the sloping hinged display shelf. An arrangement that displays the entire cover has an "advertising" advantage in libraries catering to the less sophisticated user, who needs to be encouraged to explore the collection. However, this type of unit requires more space.
A unit 6 feet high by 3 feet wide will hold:

20-25 titles
whole face display
5 racks

32-40 titles
partial face display
hinged overlapping racks

90-100 titles
flap storage spine
not displayed
pigeon holes
shallow shelves with
fixed uprights

200 titles
upright storage
upright on 4 shelves
in hard covers with title
affixed to spine

b Bound Back Issues
Back issues of the more important periodicals will probably be bound. Because these are bulky volumes and are seldom allowed out of the library, there should be a photocopying service within the library if this form of storage is used. Microfilming may replace binding in the future. If dust is a problem, closed boxes are necessary, but in the normal college situation boxes with open ends or tops that allow journals to be seen are satisfactory.

Newspapers

1 Description
Colleges may subscribe to a variety of newspapers, depending on their location and special interests.

2 Storage
Cumbersome newspaper rails are rarely used in CAAT libraries because it is no longer necessary to preserve the current issue. If back issues are required, the library will subscribe to a microfilm service.

2

3

Clippings

1 Description

Newspaper clippings provide current information in a familiar format.

2 Storage

Clippings may be mounted if the information is to be retained for a period of time. Many libraries place clippings unmounted in envelopes or file-folders. Both mounted or unmounted clippings are stored in filing cabinets.

Pamphlets

1 Description

Pamphlets contain information that is usable for a relatively short period of time. Frequently they contain material not yet published in book form. Most pamphlets constitute a single entity, although they may be part of a series, but they are usually not published on a regular schedule. The average pamphlet file contains a variety of materials, including newspaper clippings, trade catalogues, equipment-instruction manuals, sizable monographs, photocopies, reprints, government documents, and some types of technical reports.

2 Storage

The nature of the material requires a storage system to which new material can be added and old items discarded easily and sporadically. Pamphlets may be stored in vertical or lateral filing cabinets or in boxes on the shelves. Boxes may be filed on the shelves in the relevant sections or in a special area.

Filing Cabinets vs *Boxes on Shelves*
One four-drawer filing cabinet
with suspension pockets
Two tiers of shelving with pamphlet boxes (a saving of one third the area for the same number of pamphlets)

Only current-interest material
Material of permanent value (can be filed next to books on same subject)

Preferably large file size for large variation in material size
Box size must relate to material size

Illustrations and Photographs

1 Description

Illustrations and photographs that are in constant use are mounted on sheets of thin cardboard, which can be filed as they stand.

2 Storage

Unmounted items are usually placed in envelopes or file-folders. A standard filing cabinet is used for storing both mounted and unmounted items.

Large-Sheet Materials (Maps, Plans, Drawings)

If the quantity of material is sufficient, plan cabinets and map tables are the best storage method. The traditional method of storage is by batches in shallow drawers; this presents a problem when removing items from the bottom of the drawer. Suspension filing systems provide an alternative. If the size of the material varies greatly, the latter is probably the preferable alternative because all sheets are brought together to a common edge and therefore smaller items are less likely to be misplaced.

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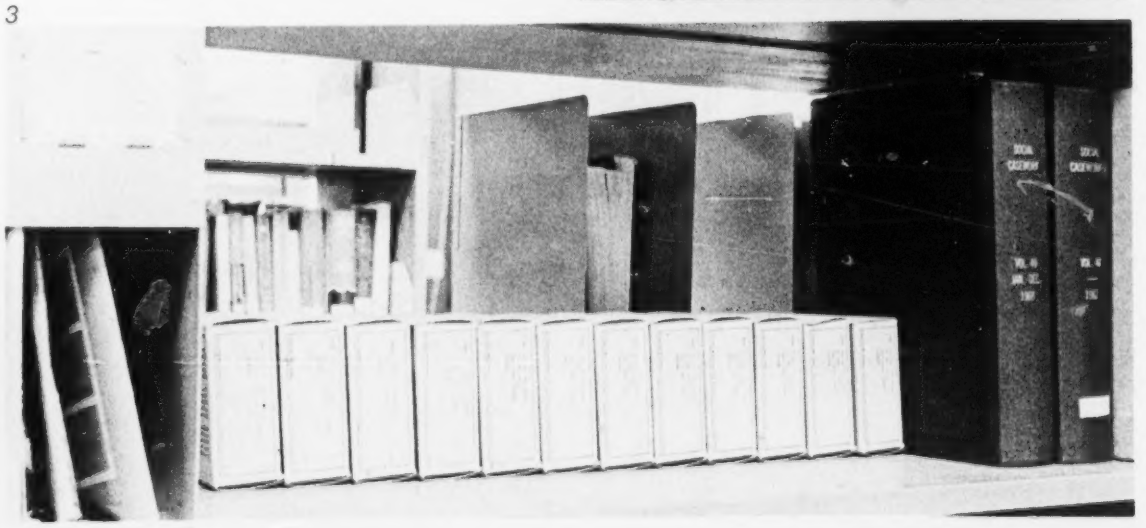


1 Clippings file

2 Pamphlet storage cabinet
Seneca College Resource Centre

3 Different media about the same subject, stored together on the same shelf.
From left to right: pamphlets, microfilm, books.

4 Storage cabinet for large sheet material.

Film

1 General

Films have been common in schools for a long time, although they have only recently begun to be used in resource centres.

Film is the suitable medium when a durable record of a subject in motion is desired. It is suitable to show dynamic microphysical processes, especially those involving biological phenomena. Although it cannot be brought up to date or amended as quickly and easily as videotape, film presently has some advantages over videotape:

1 it is more durable;

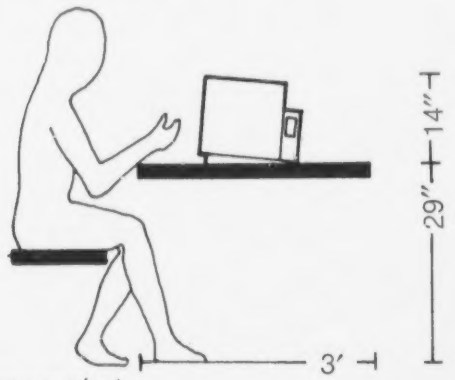
2 there are many commercially produced films created specifically for instructional use; (theatrical films that are useful in literature, drama, and history courses are also available.)

3 films can be rented at very low cost; (a film costs about the same as blank video tape of comparable length)

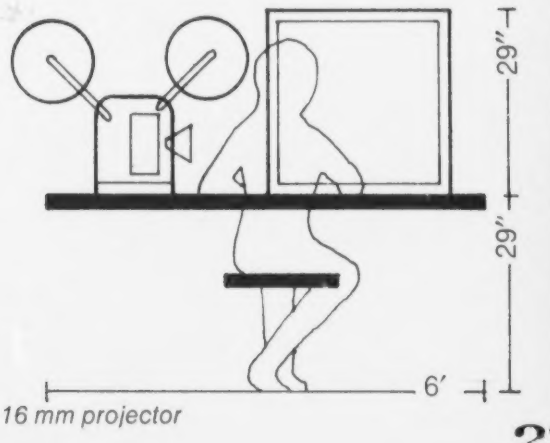
4 the projection equipment is far less expensive for films than for videotape;

5 little skill is required to operate the projection equipment for films.

Films are now used to "publish" academic work. As a result, new non-commercial types of distribution systems have been established. The University Film Distributors is a co-operative intra-university distributing system, rather like an information network. The college Bibliocentre might eventually act as a distributor of college-made films and videotapes.



8 mm projector



16 mm projector

2 The Medium

Films differ according to width and type. Recent technological advances have resulted in widespread interest in 8mm colour film for educational uses. The Super 8 format provides superior pictures with either an optical or magnetic sound track. The film is available in cartridges for ease of handling. The costs are one third to one half of the 16mm price.

Film is stored either on reels or cartridges. Reels are placed in metal containers for protection from damaging dust and dirt. It is best to store reels horizontally on narrow shelving to prevent damage by rubbing, but usually they are filed vertically in racks. Shallow metal drawers for a single layer of reels probably provide the best storage conditions and permit easy identification and removal.

3 Use

Portable viewers, employing the rear-screen projection principle, are most suitable for library use. Manufacturers claim there is no need to dim the general illumination, although glare conditions should be avoided. Therefore projection equipment should be located in an area of low illumination.

1 Film reels stored vertically

2 16 mm projector with back projector screen

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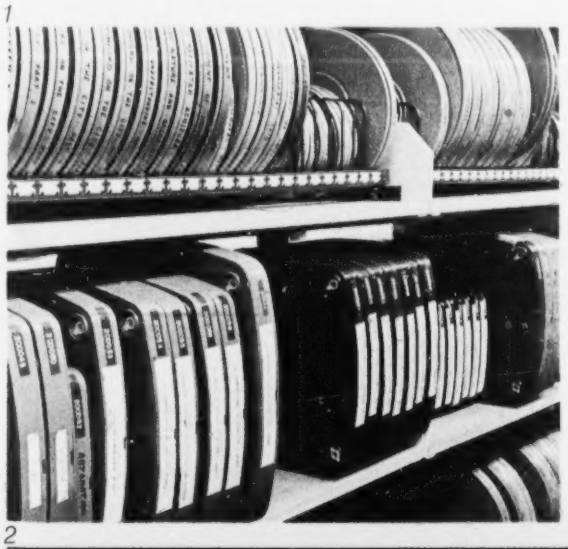

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Films produced in 16mm Kodachrome can be reduction printed to 8mm Kodachrome. These in turn can be spliced end to end for loop projection purposes. The 8mm cartridge-type projector incorporates a number of design features for easy handling. They are self threading, small sized, and lightweight, and do not require rewinding. Most units permit the use of earphones. It is more convenient to have installations in permanent locations, although the units can be easily carried from a central storage area to a convenient location.

Data Sheet: Film

The Medium: *Film*

Thermal conditions:

no special requirements for normal college use

"commercial performance" 25 years: 40% to 60% R.H.

"archival performance" filtered air: 40% to 50% R.H 70°F

Size:

width 8mm or 16mm

reel size varies: e.g., 16mm, ½ hour long = 1,200 ft. of film 13" diameter container

Storage:

best: reels stored horizontally on narrow shelving, one on top of another

common: reels stored vertically in racks

Cost:

colour reel, 1 hour = $600

black and white reel, 1 hour = $300

Equipment:

1 Projector and back projection-screen

2 Rear screen viewer

Electrical requirements:

16mm — 110 volts

8mm — 110 volts

Cost:

projector — $800 to $1,000

back-projection screen — $150 to $200

Film Loop

1 General

The film loop is a special cartridge method of packaging short film lessons. The cartridge allows the film to be run and rewound automatically without handling, which makes it suitable for unsupervised use.

The films usually deal with one highly specialized subject for a minute or two. The film loop is frequently used to supplement a demonstration situation because it can focus attention on the significant aspect of the demonstration and provide a clearer view than is possible in group-viewing conditions. The demonstration can easily be repeated on film until it is understood, and slow motion can help clarify concepts. The film loop is particularly useful in the teaching of manipulative skills ranging from keypunch to dental technology to the fingering of musical instruments. As an independent study aid, it is frequently used outside the library with the projector adjacent to the subject being learned.

2 Use

Console-type projectors are most appropriate for a library because they are designed for unsupervised use. It is preferable to locate such a projector in an area where the light can be reduced to about 25 foot-candles and where reflected glare can be eliminated.

Data Sheet: Film Loop

The Medium:
8mm film

Thermal conditions:
same as for regular film

Size:
8mm

Storage:
cartridge containers

Cataloguing:
special storage racks

Production:

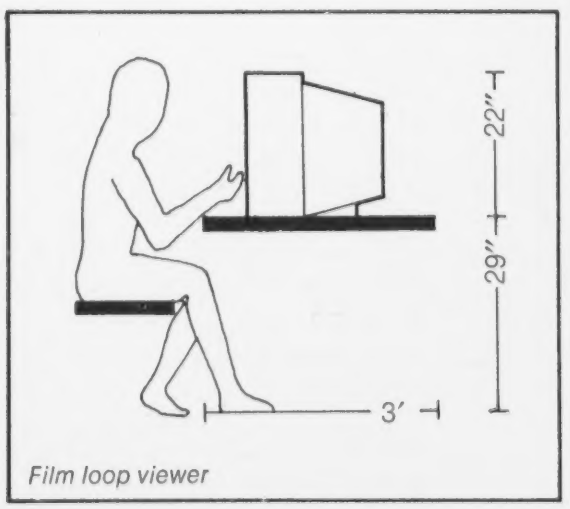
1 commercial: available with sound
2 college produced: a well-equipped audio-visual department can produce sound-on-film loops
cheaper to make separately taped sound track

Equipment:
Console-type Projector

Electrical requirements:
110 volts

Cost:
$200 to $300

Super 8 film loop viewer



Film loop viewer

Slides

1 General

Slides are very popular for situations when a single image needs to be held in projection for study over an extended period of time. Slide collections are important for most fine art programs. Slides are most often reviewed in the library for use elsewhere. Because slides are frequently used in lectures, faculty users may outnumber student users.

2 The Medium

The common format for a slide is a single frame of 35mm film, mounted in cardboard, glass, or plastic. Slides are susceptible to damage from scratching, dust, fingerprints, or discolouration by sunlight. Because slides should receive a minimum of handling the need for more elaborate storage devices will increase with the growth of users.

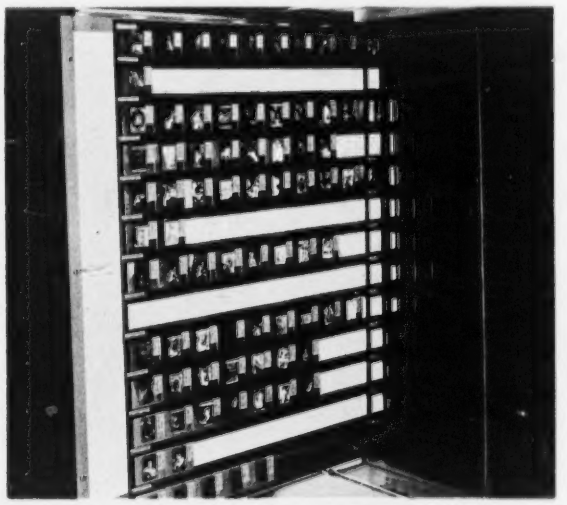
Slides can be stored in transparent plastic sheets with pockets. These can be stored in standard file drawers or loose-leaf notebooks. Specially constructed cabinets, grooved to hold slides, are available. However, such a storage system requires each individual slide to be handled for viewing and should therefore be used only for very small collections.

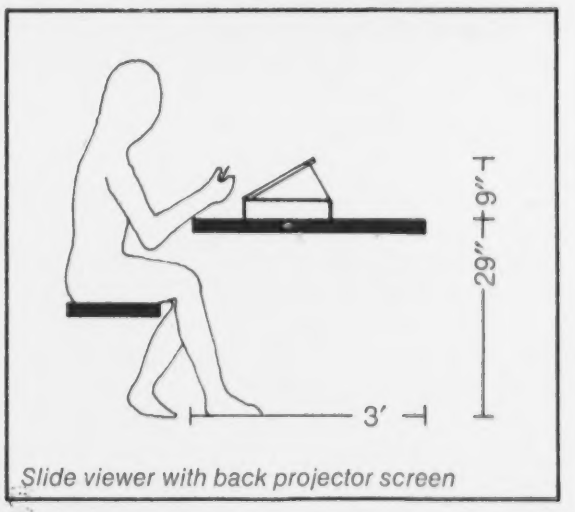
3 Use

Cabinets that include facilities for storing as well as viewing slides can be purchased or built-in. The screens holding the slides are moved in front of an illuminated panel for viewing without touching the slides.

Illuminated panels and small viewers can be used satisfactorily under normal lighting conditions. Of course, direct glare on the viewing screen should be avoided.

Built-in storage and viewing cabinet for slides
Sheridan College Fine Art Resource Centre





Slide viewer with back projector screen

Data Sheet: Slides

The Medium:
a mounted single frame of 35mm film

Thermal conditions:
no special requirements; should not be exposed to direct sunlight

Size:
2" x 2" (including mount)

Storage:
1 transparent plastic sheets
2 grooved cabinets
3 special cabinet for storage and viewing

Cataloguing:
1 Assign a running number to each slide, with each new slide being given a number at the end of the sequence.
2 Most users prefer to browse; therefore slides should be arranged in a limited number of broad subject groupings.

Equipment:
1 Projector and back-projection screen
2 Special Storage and Viewing Cabinet

Electrical requirements:
110 volts

Cost:
Projector with back-projection screen: $100 to $200
Special storage and viewing cabinet: $450 to $700

Filmstrip

1 General

A filmstrip is frequently used in conjunction with a separate, written description. It can also be presented with an audiotape or a phonographic record. The medium is suitable for topics best illustrated by a series of still visuals, such as a group of paintings, various views of sculpture or architecture, and so forth. Commercial strips are generally designed for a more junior audience and as such would be of value to those learning to work with educational materials.

2 The Medium

The medium is similar to slides, but the pictures are joined together on a roll of 35mm photographic film. Rolls vary in length, but each strip normally contains only visuals relating to a single topic.

3 Use

The individual filmstrip viewer is lightweight, inexpensive, and sturdy. The units are simple and robust enough for use by very young children. Some viewers are portable enough to be lent out from the library for use at home. Since filmstrips are only used in education, the concern for security is minimal. Desk-top viewers are usable in normal room light. A number of the units operate on batteries.

Data Sheet: Filmstrip

Medium:
strip of 35mm film

Thermal conditions:
same as for regular film

Size:
roll (may include a record)

Storage:
small plastic cylinder containers which are kept on specially designed trays

Cost:
$25 for a 20-minute strip

Production:
purchased commercially or made in the college's audio-visual department

Equipment:
Filmstrip Viewer

Electrical requirements:
110 volts

Cost:
$200 to $255 (very inexpensive viewers are available but they do not stand up to unsupervised use)

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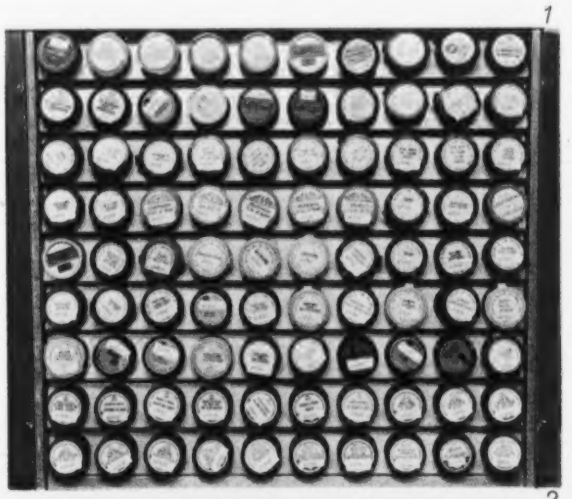

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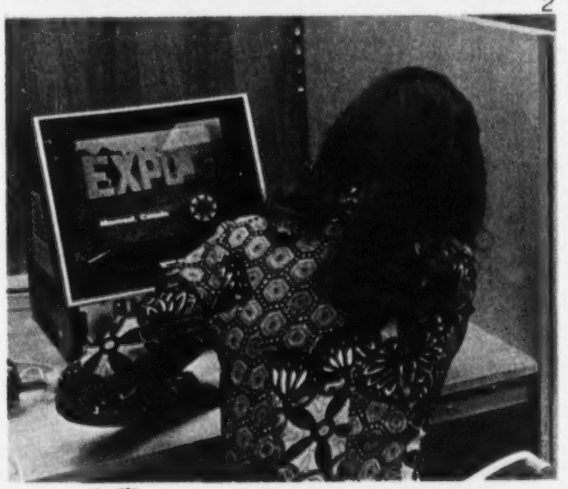
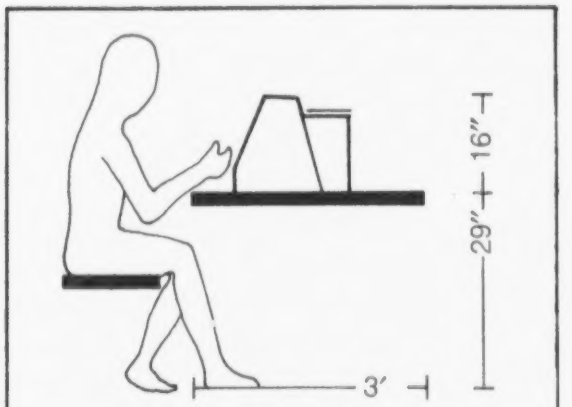




Film strip viewer with syncronized record at rear.

Microform

1 General

The primary reasons for using microforms in libraries are:

- to store material that is bulky and/or friable, particularly newspapers and magazines. It saves binding costs as well as shelf space. Subscription services are available for a number of periodicals;
- to augment the stock of new libraries, as out-of-print materials may be obtained in this medium. Back copies of some journals are only available in this form. The cost of acquisition may be significantly less than that of the original document;
- to establish collections of agency publications and journals that are regularly distributed in this form;
- to make available the content of of rare materials held from other collections;
- to permit the compact storage of little used materials;
- to form part of a photocharging system for recording book loans.

The use of microtext materials in libraries is increasing rapidly as improvements make readers and printers easier to use. Microfilm readers are now common in secondary-school libraries so that students are familiar with the equipment involved. The use of original source materials is increasing, especially in applied arts courses. A number of organizations, such as ERIC (Education Resources Information Centre), supply microtexts of documents at a fraction of the hard-copy costs. Within the next five to ten years, there should be a stable form of colour microfilm.

The following are factors to be considered in deciding whether to use microfilm:

- The costs are lower and the quality of printing, copying, and reading microfilm is improving.

1 Special storage rack for film strips.

- Compact storage arrangements permit significant space savings. (Although in some cases the cost of microfilming may be greater than the value of the space saved.)
- Microform is less convenient for users to read than are conventional materials. The machines are uncomfortable and tiring to use.
- Microfilm reading equipment is expensive and takes up more space than books or pamphlets.
- A large volume of microtext can be scanned more quickly by a reader searching for a topic whose location is unrecorded.
- Reader-printers can provide take-away material at a small cost.

2 The Medium

Micro-reproductions can be made in three principal forms:

a Microfilm is a continuous roll of 35mm or 16mm film on which information to be stored has been photographed. The 35mm gives a better resolution, although 16mm requires less storage space.

b Microfiche is a sheet of transparent film containing many microfilm images. The 4″ x 6″ card is the most commonly used format, and has been adopted as the standard size by the U.S. National Microfilm Association. The cards are usually titled across the top edge in a typeface that is legible without magnification.

c Aperture cards are the same as standard punched cards. Each card has a pocket into which a single frame of 35mm film or short strips of film are placed. The card can be sorted or matched in the same way as any other punched card.

3 Use

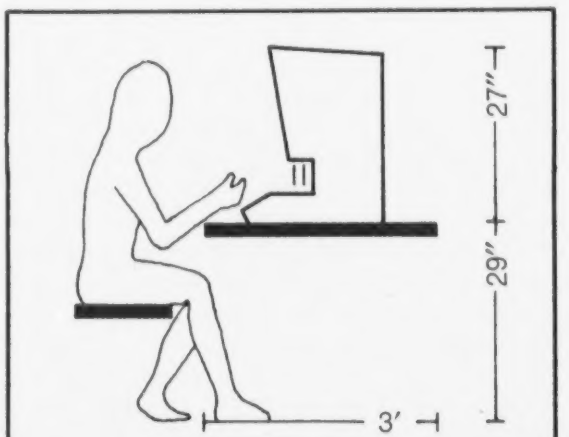
a Microreaders

In collections where the use of microtext is limited, a reader that can handle several formats is satisfactory. In larger collections, readers for each particular format are preferable.

Readers should be screened from reflected glare and a reduced level of illumination on the reading screen is desirable. Direct sunlight must be excluded. The readers operate on one of two basic principles: the image is rear-projected onto a nearly vertical screen or the image is fore-projected onto the reading surface. The dimensions of microreaders vary according to type and manufacture. Libraries with large microfilm collections should consider renting portable readers to students and staff for non-library use.

b Printers

Prints may be taken from micro-reproductions at various enlargement sizes, either as opaque or as translucent prints. Any library with a micro-reproduction collection should have a reader-printer so that hard copy of the material may be taken away by the user. The image is projected onto the screen of a viewer-printer for identification and selection before a print is produced. A Kalar printer can print graphic material for use on an overhead projector.



Microform reader-printer

Data Sheet
The Medium: Microform

Size and Storage:	Microfilm	4″ diameter reels	4″ x 4″ cartons	— on special shallow shelving — on stack shelves with books, etc. — cartons can be grouped in secondary containers
	Microfiche	3″ x 5″ card 3½″ x 7⅜″ tab card 4″ x 6″ standard 5″ x 8″	each card in opaque envelopes	— a standard cabinet 13½″ x 12⅛″ x 18″ can store: 2,500 microfiche in envelopes
	Aperture Cards	3¼″ x 7⅜″	stored in standard trays for punched cards	
Thermal Conditions:	acetate film becomes brittle in low humidity, and therefore it requires 50% relative humidity			
Cataloguing:	can be catalogued in the same manner as the original document, with an indication that it is in a special form			
Production:	best to use the services of a special photographic lab; in the future, the Bibliocentre might develop this service			

Equipment: Microfilm Reader and Printer

Electrical Requirements: 110 volts

Cost: $1500 to $1700

Videotape

1 General

This section deals with the use of video tape as a resource centre material, not as a classroom aid. Therefore, studio, transmission, and distribution are not considered.

The instant-replay characteristics of videotape makes it ideal for recording current events either live or from broadcast programs. Videotape as a source material is far more current than magazines or newspapers. Also, it adds a dimension of semi-personal observation.

The factor governing the degree of use at present is more likely to be the educational philosophy of the college than the nature of the medium. A few well-publicized failures of television use in education, the high cost of elaborate studio installations, and the uncertainty about new developments have resulted in a cautious approach in some institutions. It may be best to consider the medium as simply another resource material rather than as an educational panacea. The colleges are building diversified collections by taping programs off the air. The question of copyright infringement in this practice is being debated by various semi-official committees and may ultimately be tested in the courts.

2 The Medium

Videotape is magnetic tape on which both picture and sound can be recorded and from which they can be reproduced. Most colleges are using 1″ wide tapes, although they come in ½″, 1″, and 2″ widths. Both the clarity of resolution and the cost of the tape increases with the width. The same tape can be used for either colour or black and white pictures; however, colour recording and presentation require far more expensive equipment.

Videotape cassettes or cartridge units, which will convert the standard TV set into the equivalent of a home-movie projector and screen, will probably be commercially available within a year. The first cartridges will probably carry one hour of black and white or a half hour of colour TV. The student will soon be able to borrow a video-cartridge for home use instead of a book.

The present videotape deteriorates rapidly unless it is stored in environmentally controlled conditions and is handled by knowledgeable personnel. Thus the tapes are usually kept in closed reserve areas.

As with audiotape, the video-cassette will probably pose a security problem because it can be erased and used for other purposes. Again, if a problem develops, a deposit can be required or a master-tape system developed.

3 Use

There are numerous methods of replaying videotape:

- a videotape recorder and a TV monitor. This is the simplest system;
- the video-cartridge unit. This should be available within a year;
- distribution systems with a central control room linked by dial-access to student stations. These systems are extremely expensive. Some of these are outlined in the Educational Facilities Laboratory report *Instructional Hardware: A Guide to Architectural Requirements.*

Data Sheet: Videotape

The Medium:
Magnetic Tape

Thermal Conditions:
34° to 110° operating temperature range

Size:
½″, 1″, or 2″ wide (most use 1″ width)
various lengths: e.g. 7″ reel=1 hour

Cataloguing:
label can be marked on side of canister

Production:
commercially produced or made on campus

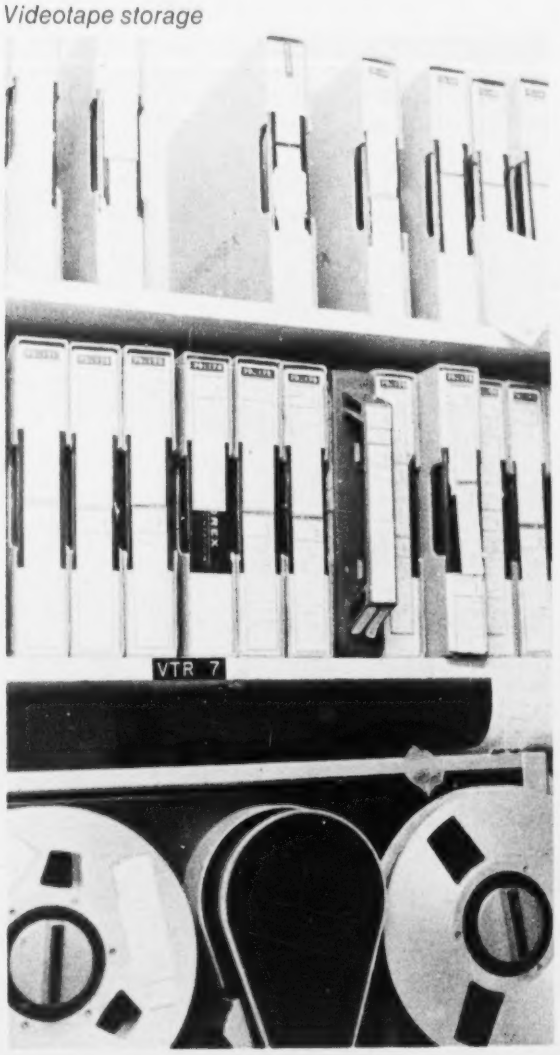
Equipment:
Videotape recorder and TV monitor

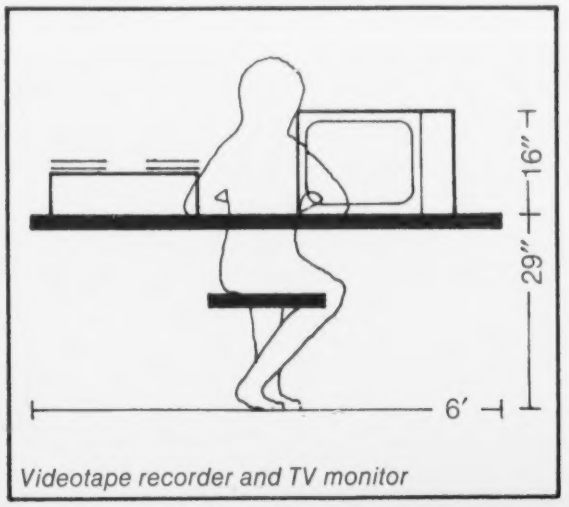
Electrical requirements:
110 volts

Acoustical requirements:
headsets provide privacy

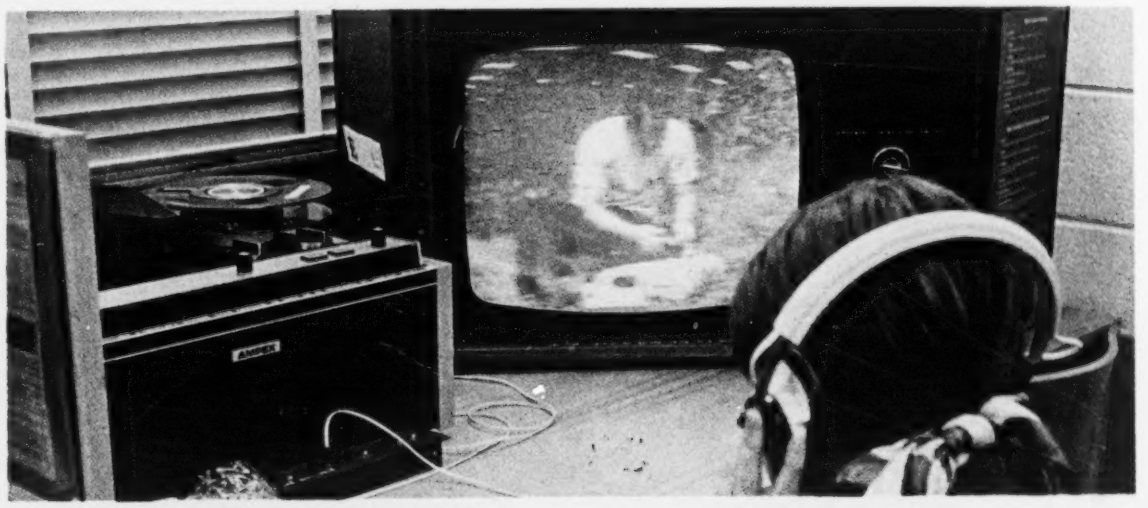
Cost:
Cost range is great and depends on many factors:
a portable playback machine: $1,150
a portable recorder machine: $1,170
a colour recorder: $18,000

Videotape storage





Videotape recorder and TV monitor



Audiotape

1 General

Audiotape is now commonly used in education. As tape recorders become generally more available, educational tapes will be used with greater frequency. They can be used as an audio medium alone or they can be combined with visuals through the use of instruction guides, workbooks, filmstrips, or slides.

Language lessons are probably the most common educational use of audiotape. Tapes are used for music appreciation, for shorthand dictation at various speeds, to record speeches and events for political-science courses, to tape radio programs for use at a more convenient time, and as talking books for the visually handicapped.

Audiotape is far more economical than videotape and, at present, far easier to handle.

Radio is the forgotten medium, but it can be the source of first-hand information which is not available on television. It is unlikely that radio would be used by itself in the library; however, it can be an excellent source for audiotape. The CBC, in particular, has radio lectures on various topics that are well worth preserving for careful perusal. Music collections can be built up if the quality of reception and recording is good.

2 The Medium

Tapes are sorted on reels, which are kept in canisters ¼" wide with varying diameters. The introduction of the cassette tape has made the tape-recorder easier to use than a record player and extended the life of the audiotape itself. However, the cassette tape has a tendency to unwind and so should be stored in the container supplied by the manufacturer.

Due to the small size of the containers, reels and cassettes should be stored as a separate grouping on narrow shelving, slightly angled to the rear. Tapes should be stored vertically to prevent distortion.

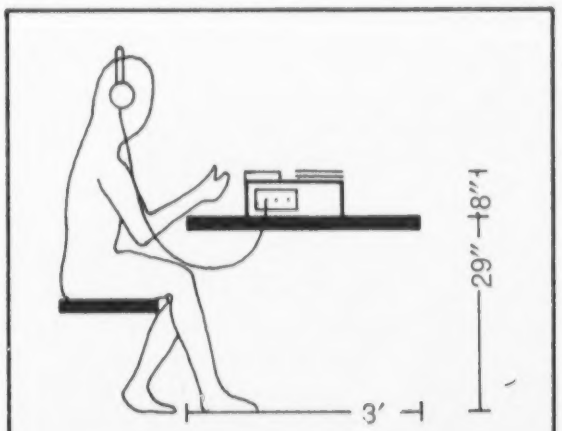
Tapes can pose a security problem because they have an intrinsic value of their own — material can be erased and the tape reused. Some libraries cope with this problem by requiring a deposit equal to the value of the blank tape, but this involves extra bookkeeping for the library staff.

A master-tape system allows the original tape to be transferred from a master to the student's own tape. Devices are now available which will provide high-speed copies of cassettes on a coin-operated basis. These could soon be as useful as a photostat copier is today.

3 Use

Audio tape can be replayed on the following equipment:

- a tape-recorder with earphones;
- a cassette tape-recorder with earphones;
- a central bank of tapes linked by an elaborate dial-access system to student stations. (See the EFL report, *Instructional Hardware: A Guide to Architectural Requirements.)*



Audiotape recorder with headphones

Data Sheet: Audiotape

The Medium:
Magnetic tape

Thermal Conditions:
ideal: 40° to 60°F temperature
40% to 60% relative humidity

Size:
¼" width, varying lengths

Cataloguing:
label can be marked on side of canister or cassette

Production:
on campus
also commercially produced

Equipment:
Tape Recorder

Electrical requirements:
110 volts
some are battery operated

Acoustical requirements:
headsets or listening chairs provide privacy

Cost:
$150 to $300 (cassette: $165)

Storage cabinet for audiotape cassettes.

Phonograph Records

1 The Medium

Records have long formed a part of library collections, especially in the music section. The widespread availability of phonographs makes this a suitable medium.

Records can be easily damaged by heat, dust, scratches, or improper use of the record player. Thus they are frequently damaged in circulation and require replacement.

Records are sorted in cardboard jackets, and shelved vertically. There should be supporting partitions at intervals of not more than six inches to prevent warping. The divisions should be comfortably fitted, not packed.

2 Use

Most record players are lightweight and portable. Sound is projected through speakers, headphones, or an earphone. Headphones and earphones require frequent cleaning with antiseptic solution. Soundproof cubicles provide privacy and freedom from the encumbrances of headphones. However, they are expensive, space consuming, and they limit flexibility. Sound chairs with built-in speakers create semi-private cubicles. The required wiring limits their flexibility. The illustrated chairs are very comfortable, but not suitable for note-taking.

Data Sheet: Phonograph Records

The Medium:
Records

Thermal conditions:
no special requirements; however, they warp in temperatures over 120° and therefore they should not be exposed to direct sunlight

Size:
12" x 12"

Cataloguing:
give each record an accession number and add to them as they are received

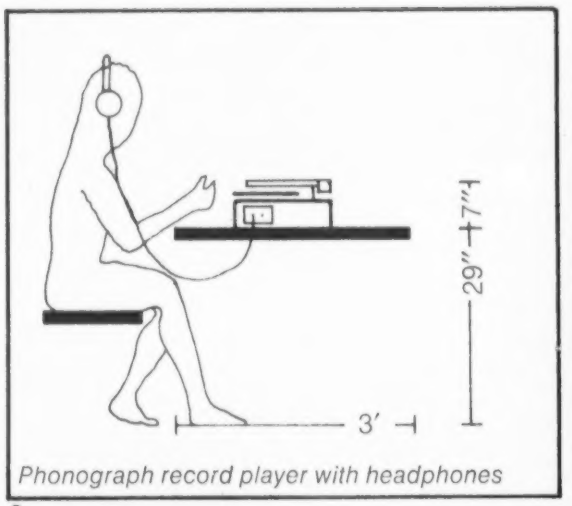
Production:
records must be produced commercially

Equipment:
Record player

Electrical requirements:
110 volts

Acoustical requirements:
headsets or listening chairs provide privacy cubicles are expensive

Cost:
$50 to $100



Phonograph record player with headphones

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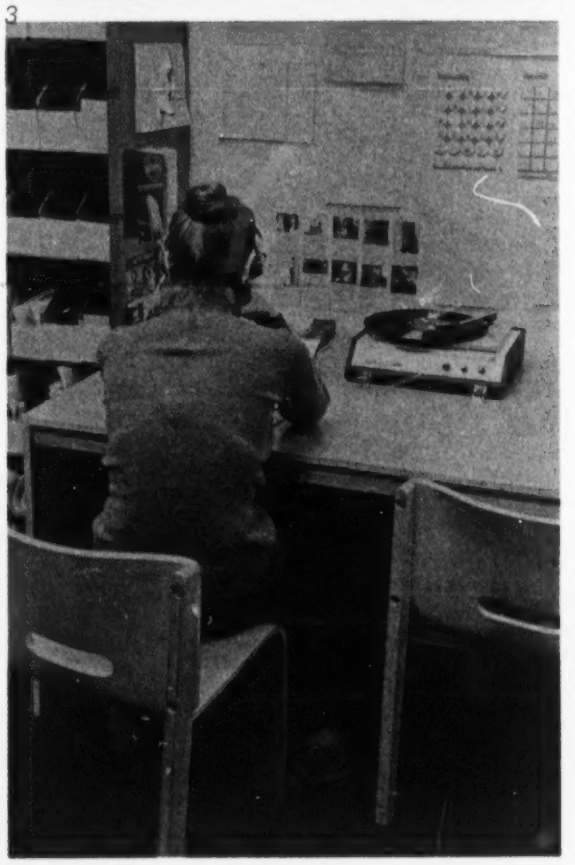

1 Phonograph record storage

2 Phonograph record — storage and display

3 Phonograph record player

4 Listening chairs for hearing records (or audiotape) Seneca College Resource Centre

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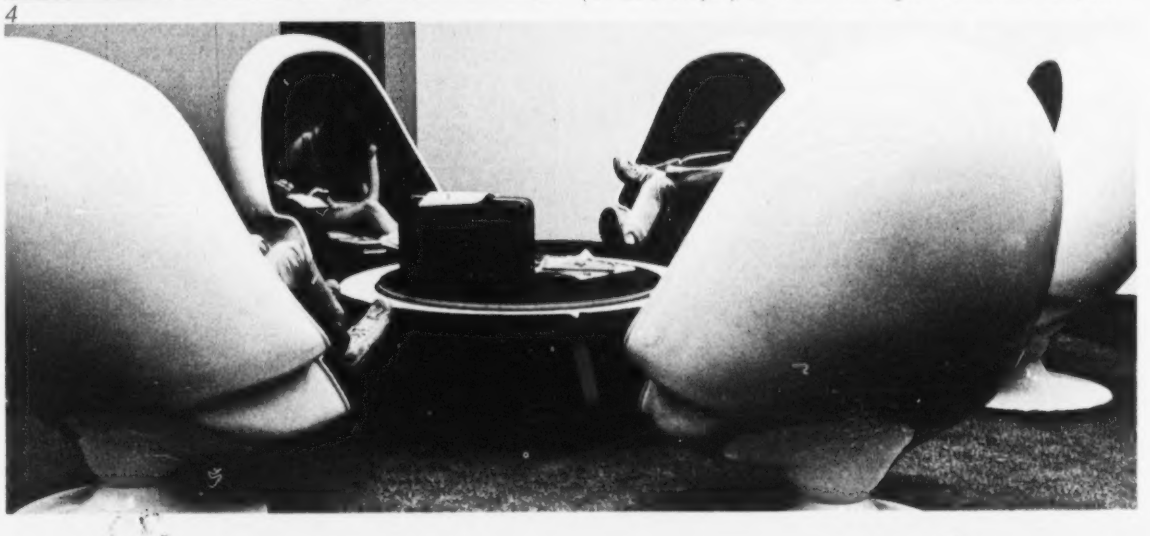
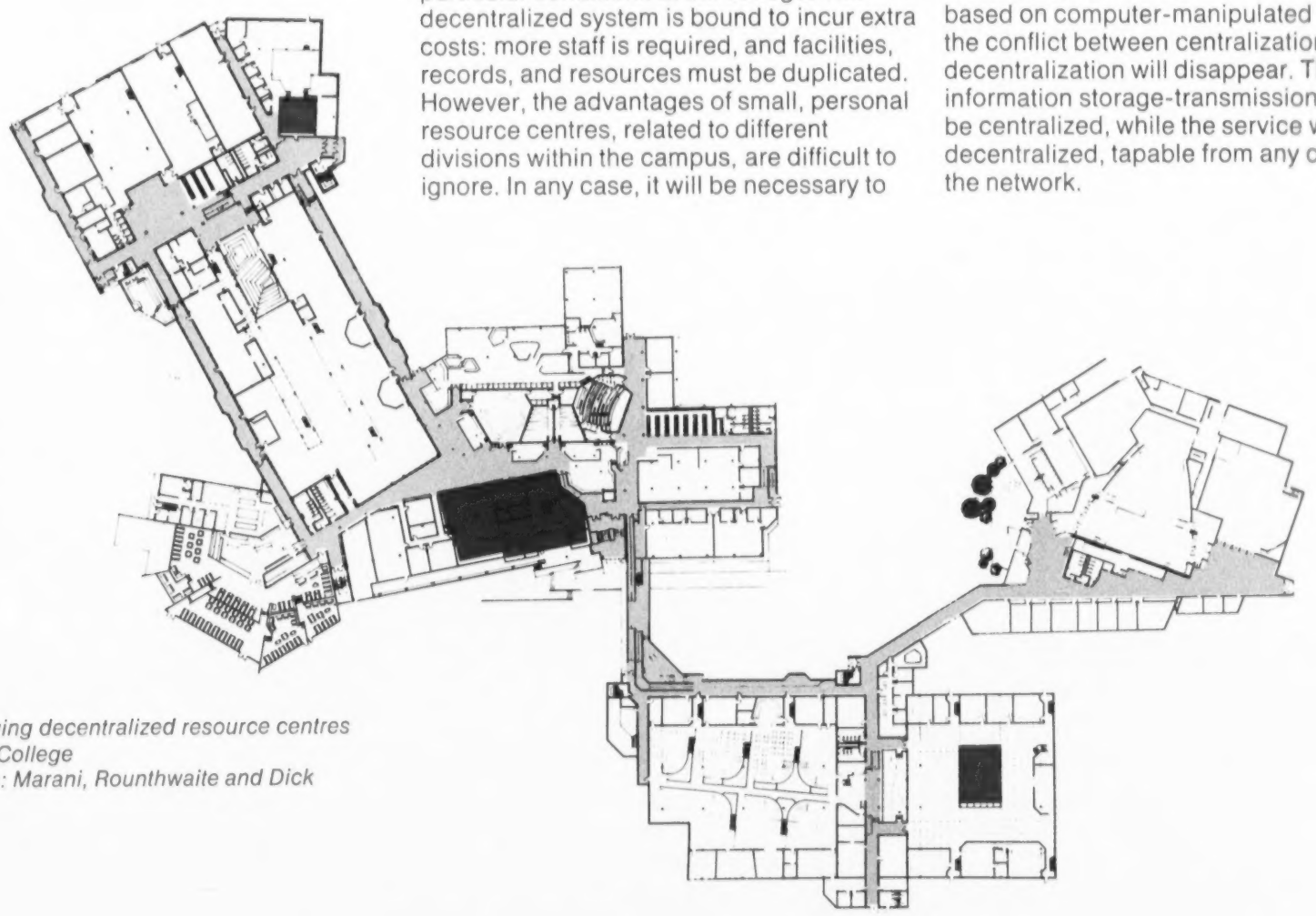


Part 5 Architectural Considerations

Centralized vs. Decentralized
At an early stage, the committee must make a decision about the physical organization of the resource centre — that is, whether it should be centralized or decentralized.

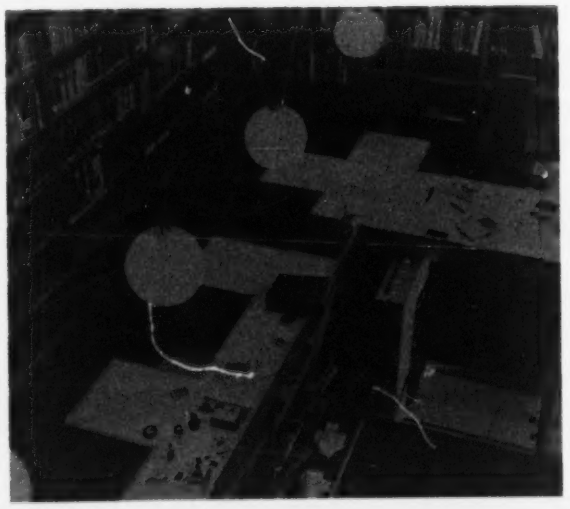
There is good support for both arrangements, so the final decision should be generated by particular conditions at the college. The decentralized system is bound to incur extra costs: more staff is required, and facilities, records, and resources must be duplicated. However, the advantages of small, personal resource centres, related to different divisions within the campus, are difficult to ignore. In any case, it will be necessary to centralize certain services (such as receiving and technical services) for efficient operation.

When the computer-printed catalogue comes into use, the problems of the decentralized system will be reduced. If the day ever comes when the resource centres are electronic information-transfer networks based on computer-manipulated services, the conflict between centralization and decentralization will disappear. The information storage-transmission cores will be centralized, while the service will be decentralized, tapable from any console in the network.



Plan showing decentralized resource centres
Sheridan College
Architects: Marani, Rounthwaite and Dick

Fine-art resource centre



General considerations

	Advantages	Disadvantages
Centralized system	1 economy of operation — eliminates duplication of operation, equipment, and materials 2 simplifies control 3 stimulates user's interest in different subjects by allowing browsing through a variety of subjects	1 less readily accessible to all departmental users 2 some users will be discouraged by distance to the central library
Decentralized system	1 provides easy access for department users 2 encourages spontaneous usage 3 laboratory related information is readily available	1 in most cases more expensive operating costs 2 duplication of operation, equipment, materials 3 may have to search several locations to find material 4 difficult to supervise departmental collections 5 staffing problems decrease likelihood of evening and weekend openings

Chart describing the centralized and decentralized system under specific conditions

		Centralized	Decentralized
Size of Facility	6,000 students — eventual 7½ sq. ft. per student 10 volumes per student	1,500 seats 45,000 sq. ft. 60,000 volumes	4 libraries with 375 seats in each 11,250 sq. ft. in each 15,000 volumes in each
Finding Information	informal retrieval browsing	all books in one place all staff in one place all staff in one place	information divided staff divided subjects limited
Access	hours student non-student	uniform for the entire library library *not* related to work area library easy to find	each library can have hours suitable to its own function library related to work area more difficult to find
Staff	6 professionals 20 non-professionals	1 professional at all times (at least)	1 professional at all times in each library
Technical Services	Bibliocentre does main processing much material is still received locally i.e., a.v., periodicals, etc.	one central location required in both cases branches must be easy to reach with book trucks, etc.	
Technicians' Program	practice work in library limited to jobs requiring more than one person at a time because supervision is necessary	maximum of four students in one central library	two or three students can be accommodated in each
Catalogue	card catalogue: 200 drawers book catalogue: computer — annual print-out	central filing (good) book catalogue can be used in either situation	duplicate sets of cards, difficult to keep updated
Circulation	charge out desk dispersing material recordax	— large area required for peak periods between classes — specials (e.g., reserve books) hard to handle — one or two necessary	— smaller area required (fewer book trucks required) . . individual service — more *personal* — one in each branch required
Administration	one central administrator required one central budget control required	clear delineation of authority — problems of loss or misplacement of materials reduced	branches harder to administer — chief librarian in one branch; assistant located in another branch
Books	circulating collection	controlled by one clerk	one clerk in each
Periodicals and Newspapers	microfilm and readers required	several "readers" needed one printer	one "reader" in each one printer shared by all
Tapes	cassettes and recorders on loan	general material available to all	items belong to one division general items require duplicating
Slides	circulation storage	easy to return to one centre collection becomes too large	— difficult to keep collections separate — small collection easier to handle
Films	small collection	require one location	
Clippings	file cabinets of picture and article clippings	best in one centre	pictures and articles may be divided, but no further divisions should be made
Telephones and Teletype	communication with classes, outside libraries, and publishers essential	teletype in one place several telephones needed	inter-communication between branches is essential. Also outer connections are needed.

Future Expansion
It is difficult to anticipate the rate of growth of a resource centre because future planning variables cannot be clearly defined.

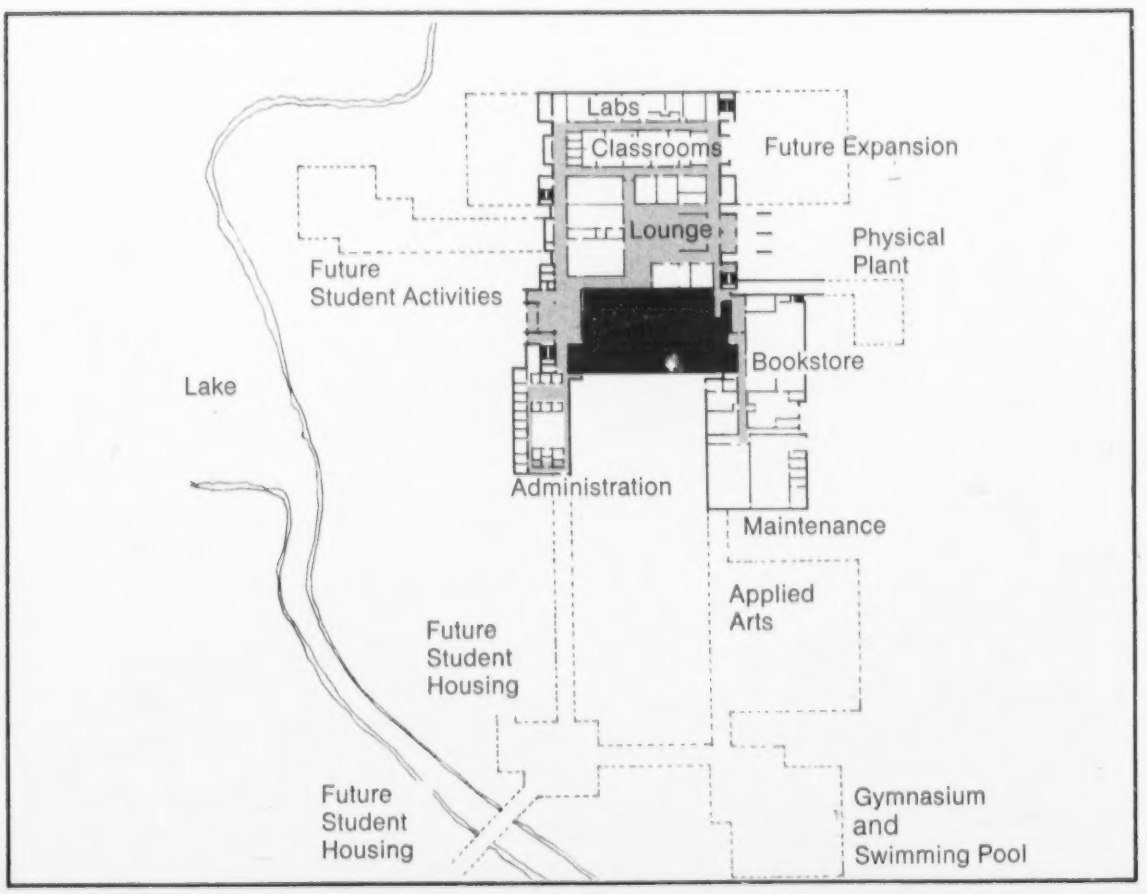
To base calculations of the future size on present demands can be misleading. A good centre encourages use: by improving the level of service, more student and staff users will be attracted, and thus a larger collection and more library staff will be required. The population base may increase far beyond the original estimates; the percentage of library users may expand beyond that anticipated, the library may develop unanticipated uses, such as function as a regional reference centre for industry; local high school students may make greater use of the collection than anticipated. The use of non-traditional materials is expanding and technological developments may produce new information-transfer formats.

Therefore it is important that the resource centre have a combination of internal flexibility and the capacity to expand physically. These basic criteria, however, must not put any restrictions on the usefulness or specific suitability of the space provided. This expansion can take place in two ways. An addition can be built adjacent to the existing resource centre or existing space used for other functions can be converted and taken over by the resource centre.

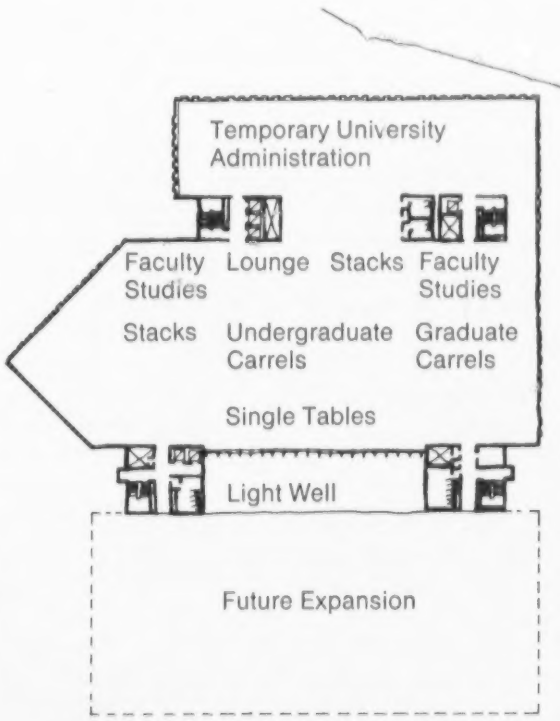
Facilities such as service cores, elevators, or stairways should be designed so that they do not require alteration when other functions change. These service cores should be located so they can be used by, and integrated with, any added areas.

The following are some of the most common limitations to expansion:

- The original master plan location makes expansion difficult.
- Flexibility is not an integral part of the basic design.
- An odd-shaped space makes efficient expansion difficult.
- The structure was not designed to take heavy library loading.
- Bearing walls block expansion.
- Major plumbing installations limit the direction of expansion.
- The air-conditioning system was not designed to handle an expanded area.
- Expansion plans were not co-ordinated with fire marshal's regulations.
- Expansion creates problems of exiting from existing building.



Plan showing centralized resource centre
Confederation College
Architects: Smith Carter Searle



Plan showing future expansion which will utilize existing service cores
McLaughlin Library, University of Guelph
Architects: Hancock, Little, Calvert Associates

Relation to Other College Facilities

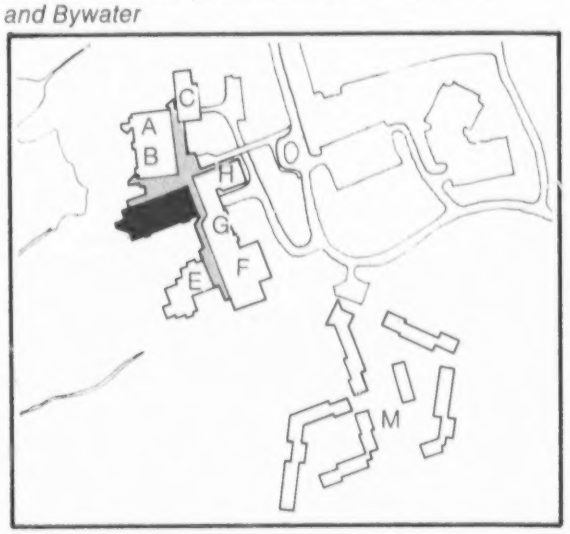
The majority of the colleges of applied arts and technology have decided that a centralized resource centre best meets their requirements. Most of the permanent main campuses have developed within a single exterior envelope, minimizing the distance between departments and eliminating exterior pedestrian movement patterns. The centralized library should be a short distance from all departments where the users make frequent short visits (probably science and technology). It can afford to be further from those likely to use the library for longer periods of time (probably applied arts and business and commerce). A location near to other communal facilities is desirable to encourage the non-academically oriented student to drop in. However, care must be taken that such a location does not result in unwanted noises in the library.

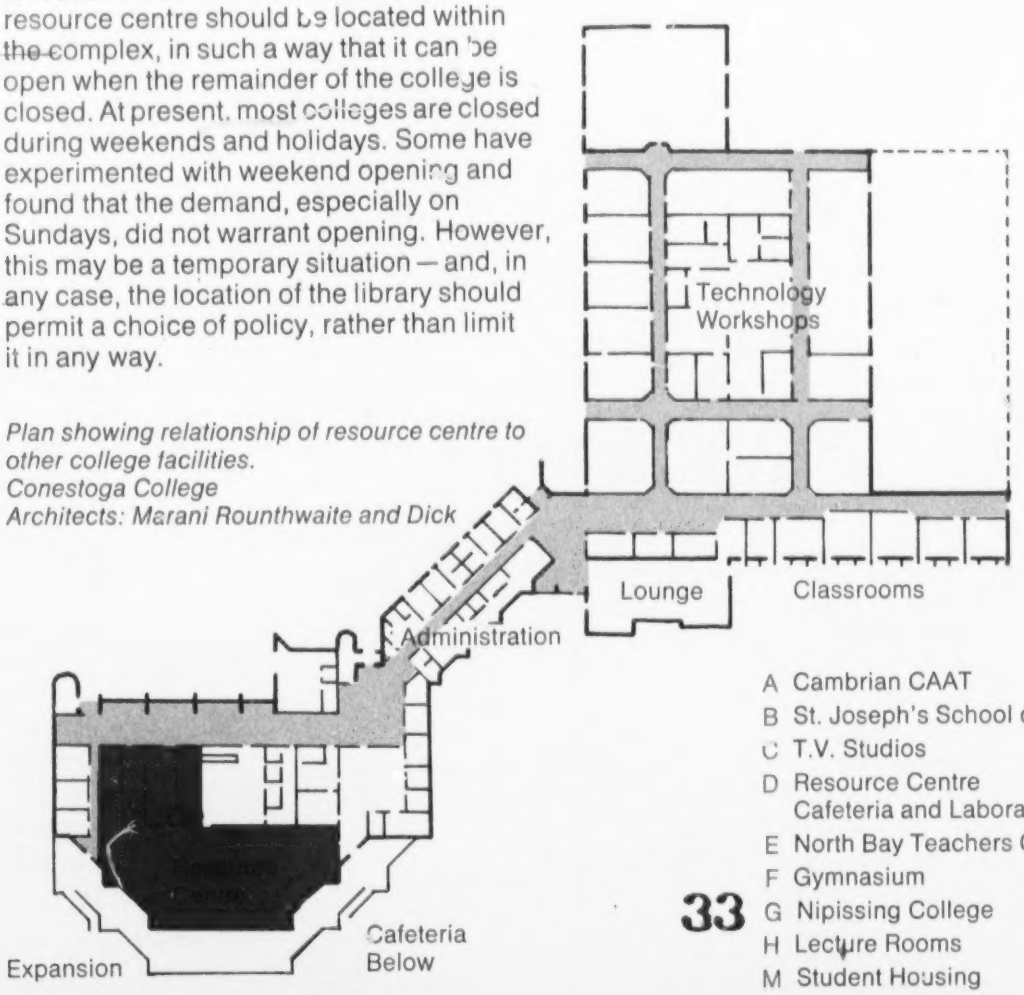
In colleges that adopt the independent-study approach, faculty offices should be near enough to allow for consultation, conference sessions, and the interaction of students and teachers. If students are to pursue individual-learning programs for an extended period of the day, near-by social areas for relaxing should be provided.

As students begin to use the resource centre more independently, it becomes of vital importance that they have easy access to it at all times. This means that the resource centre should be located within the complex, in such a way that it can be open when the remainder of the college is closed. At present, most colleges are closed during weekends and holidays. Some have experimented with weekend opening and found that the demand, especially on Sundays, did not warrant opening. However, this may be a temporary situation — and, in any case, the location of the library should permit a choice of policy, rather than limit it in any way.

Unfortunately, a number of the campuses are in isolated locations. This puts a restriction on the full use of all facilities, especially the resource centre. However, it is hoped that future residential development will surround campuses, bringing the user population closer to the facilities. This physical liaison is important, if outsiders are going to take advantage of the resource centre to an extent that ensures that its potential as a community facility is fully realized.

Plan showing relationship of resource centre to a group of institutions.
College Education Centre
Architects: Thompson, Berwick, Pratt, Wallis and Bywater





Plan showing relationship of resource centre to other college facilities.
Conestoga College
Architects: Marani Rounthwaite and Dick

A Cambrian CAAT
B St. Joseph's School of Nursing
C T.V. Studios
D Resource Centre
Cafeteria and Laboratories
E North Bay Teachers College
F Gymnasium
G Nipissing College
H Lecture Rooms
M Student Housing

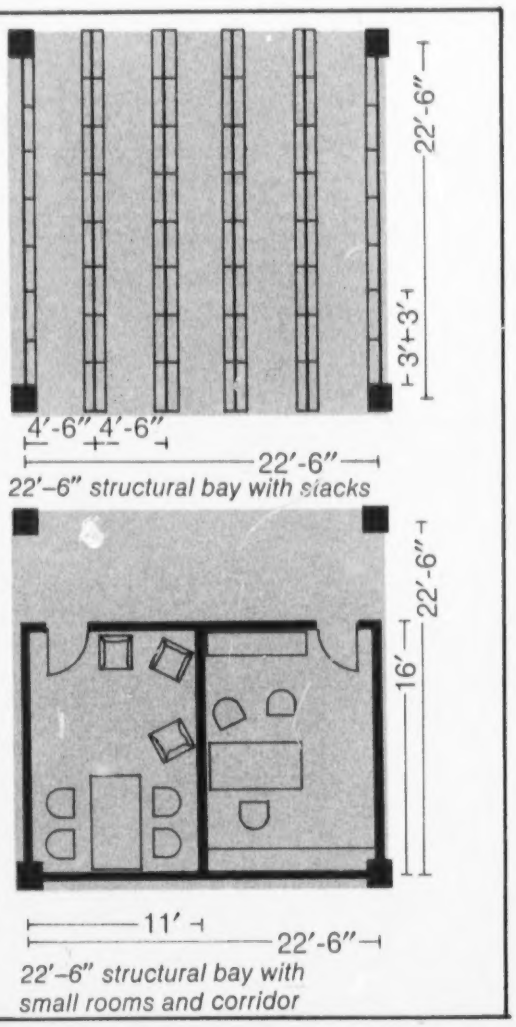
Modular Planning

1 Selecting a Suitable Module

The selection of a structural-bay dimension, which relates to the optimum spacing of bookstacks and reading-spaces so that reading and book storage areas may be interchanged, is referred to by librarians as "modular planning". (The phrase used in this context should not be confused with the more precise meaning of the word "module" as used in the building industry.) A resource centre composed of identical structural bays has the required potential for internal flexibility or subsequent rearrangement of spaces.

It should be emphasized that the modular approach does not necessarily create dreary or uniform spaces. On the contrary, by accommodating a wide choice of functions, modular planning should create the most suitable environment. Arbitrary configurations, such as round buildings or large, open wells, can only cause problems.

The structural bays are defined by columns at the four corners. Theoretically, all the space between the columns is flexible. When a library is an isolated building element in a campus development, the problem of determining the most efficient and flexible module involves a complicated balancing of such functions as book



22′–6″ structural bay with stacks

22′–6″ structural bay with small rooms and corridor

storage, study carrels, reading-areas, and office sizes, together with economical floor spans. The colleges of applied arts and technology have developed as single-structure campuses, planned around various modular grids. Thus the most desirable bay size for the library element must be considered together with the functional requirements for the other college elements, and a compromise must be reached.

In university and research libraries, the module is usually determined by the bookstack requirements. Metcalf states that a bay-size of 22′ 6″ x 22′ 6″ with columns no greater than 14″ in diameter is the most commonly adopted solution in these cases.

However, large stacks are not the significant factor in CAAT resource centres. Indeed, this classical type of storage layout is highly inappropriate. Storage areas must relate to user areas in an open, informal manner. A variety of space types is the most important factor.

It is no longer adequate to consider only standard library furniture when choosing a module. As activities become more varied and difficult to predict, just about any type of furniture can be expected. With the choice of a suitable module, the basic pattern is established for the building's flexibility.

Flexibility
The committee must consider what degree of flexibility will be necessary for its particular resource centre. An extreme case would be a building that must be able to accommodate other possible functions such as offices or classrooms. However, it is more likely that the degree of flexibility will be limited to interchangeable operations within the resource centre. This requires a lighting and wiring system that can be adjusted for various types of equipment and a module that can accommodate a variety of layouts. The definable parts of the building, such as stairs, services, and washrooms, will remain the same regardless of how the main spaces are being used; thus they can be considered as fixed points in the building's layout.

Structure
The size of the module, the degree of flexibility, and the structure are all dependent on each other; therefore, decisions about each of them must be made concurrently.

1 Floor Loadings
If maximum flexibility is required, the entire structure must be capable of supporting the greatest live load anticipated for any part of the resource centre. The floor loadings that may be regarded as permissible for library bookstacks vary according to the structural characteristics of the floor concerned. In general there are three characteristic floor-structure conditions:

- structures capable of supporting a uniformly distributed load of 133 lb. per sq. ft. at right angles to the bookstacks, e.g., reinforced concrete cast in place.
- when there are no spreaders for the loading, beams should be designed to carry a uniformly distributed load of 150 lb. per sq. ft.;
- if the floor-to-ceiling height is greater than 9 ft., the uniformly distributed load is reckoned to be 15 lbs. per sq. ft. for every foot height of *potential* bookstack.

2 Column Sizes
Internal column sizes should be determined as early in the design process as possible because they may affect layout and flexibility of bookshelf arrangements. Avoid columns having dimensions greater than the thickness of a double-sided bookstack, as this will reduce effective passage width. There should be no allowance for live-load reduction in multi-storey buildings because each floor could become loaded to capacity with bookstacks.

A number of college resource-centre layouts are designed so that they expand into areas used as classrooms in the initial phase. Any spaces intended for library expansion must be constructed to carry the library loading. Unusual structural design (e.g., cantilevers) must be limited to areas that do not require flexibility.

Height
It is economical to keep ceiling heights reasonably low. However, lighting and ventilation must be considered. Most new libraries have a clear ceiling height of about 8′ 6″

Example
An experiment was conducted at Princeton; in which it was determined that a library space 25′ x 36′ could have a ceiling as low as 8′ 4″ and remain comfortable.

Ceiling height must be co-ordinated with the height of the shelving-units. Too low a ceiling can create problems of light diffusion and air movement.

Lighting

1 General
The invention of the fluorescent tube made it possible to illuminate large areas at a constant level. This has had great advantages; however, when used exclusively, fluorescent lights create a monotonous, textureless effect which can be overpowering.

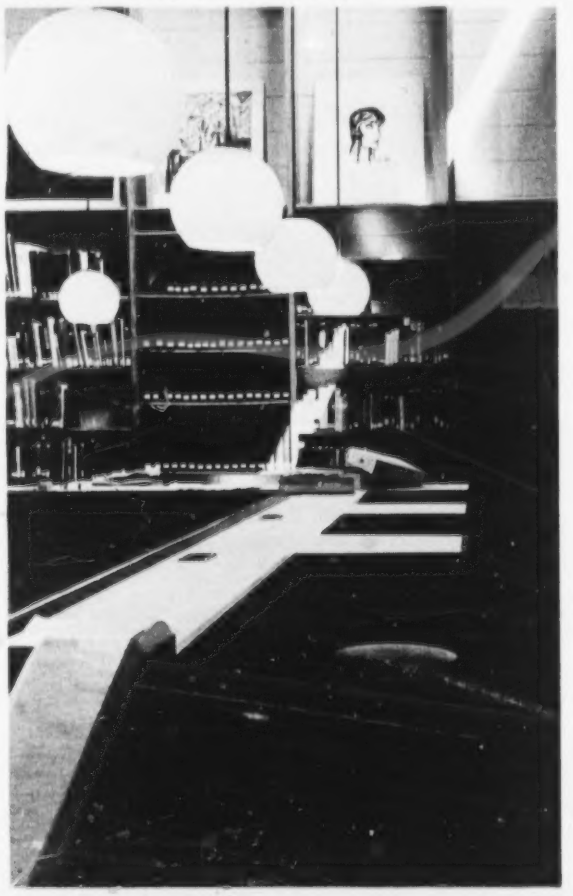
A resource centre includes many different operations, each having unique characteristics. Flexibility demands that operations be interchangeable. Therefore, the different lighting required by each operation should be easy to alter. The use of a space should not be limited by the lighting.

A good lighting system can be considered under two headings:

a fluorescent ceiling lights which provide a basic level of illumination in general areas. The fixture should be easily removable, so that lights may be eliminated or added as required;

b local lighting which supplements the ceiling lights: lamps in casual seating areas, desk lights at carrels, spot lights for displays — all operable by the user as required. It is this lighting that gives each area its special character, suited to its specific function.

Orange globes provide local lighting
Sheridan College: Fine Art Resource Centre



2 Artificial Light

a Quantity

It is generally considered that 70 foot candles are required on library working surfaces and a minimum of 45 foot candles on the lowest stack shelves. The following are the minimum recommended foot-candles from the *IES Lighting Handbook*. The chart indicates that the quantity of light required depends on the nature of the task to be performed.

Minimum recommended foot-candles from *IES Lighting Handbook*

Library or Reading Room	
Study and notes	70*
Ordinary reading	30
Stacks	30
Book repair and binding	50
Cataloguing	70
Card files	70
Check-in and check-out desks	70
Typing	70
Theatres	
During intermission	5
During motion picture	0.1
note low level of illumination for optimum use of film material	
Music rooms	
Simple scores	30
Advanced scores	70
(substandard-size score with notation printed on the lines)	150
General	10

*The School Library notes that they accept the 70 foot-candle level "with reluctance and scepticism for the reason that even these levels may be less the product of scientific data than the role played by salesmen. We prefer to use 50 foot-candles." The chart confirms that a uniform level of lighting is not suitable; in fact, a variety of levels is necessary.

b Specific Areas

The following is a detailed study of lighting requirements in particular areas.

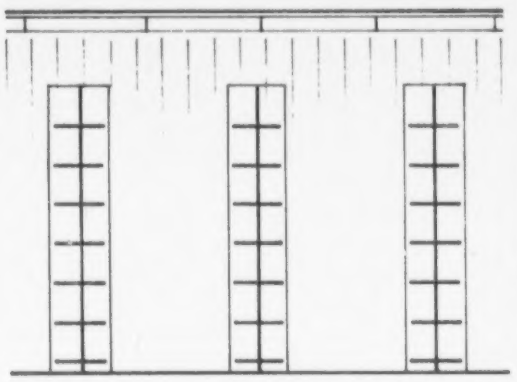
1 Bookcases and Stacks

Although it is not anticipated that the CAAT resource centres will have large areas of stacks, all colleges have the problem of arranging open collections. There are a number of considerations: the lower shelves of the stacks need to be as well lit as the top shelves. The initial design of the library lighting can limit the flexibility for rearranging the storage units, render revised layouts unsatisfactory, or necessitate costly rearrangement of the lighting fixtures.

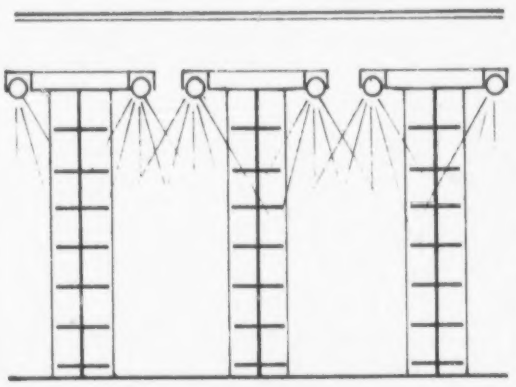
A luminous ceiling provides maximum flexibility. If fluorescent fixtures are used, they should be aligned at right angles to the shelf units. This provides a wider angle of light and thus greater intensity on the lower shelves. This arrangement also permits spacing between stacks to be altered. Six-foot centres can be used as an approximate guideline for spacing fluorescent tubes.

There should be at least one foot between the top of the bookshelf and the lights, or books may overheat. Certain vulnerable materials should not be stored on the top shelf.

At the McLaughlin Library in Guelph, each stack was designed with its own fluorescent fixture attached to the top. This has numerous advantages: it provides good lighting for the full height of the stack and the stacks can be placed anywhere in the library, without adjusting ceiling fixtures. However, this system requires a pattern of modularly spaced outlets which can be tapped at any time.



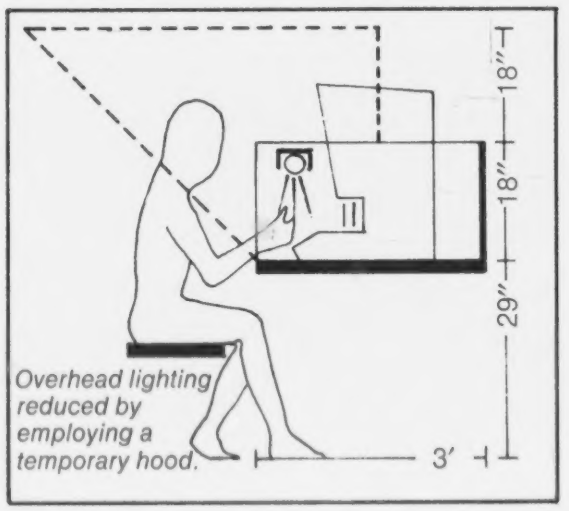
Fluorescent fixtures at right angles to the shelf units



Stacks with their own lighting

2 Micro-reproduction Readers

It should be possible to reduce the level of illumination in the area devoted to these machines, as high-intensity light makes it difficult to read the material. Some models have large hoods to cut out the light, but these make it difficult to provide an adequate writing surface. The problem becomes critical with the use of small light shields which eliminate only a portion of the light. Temporary hoods may be devised with cardboard or plywood. Small down-lights should be placed on the writing surface for notetaking.



Overhead lighting reduced by employing a temporary hood.

3 Film and Slide Projectors

These require an even lower level of illumination than the microreaders. It is therefore important that the equipment be located in an area specifically designed to accommodate it; that is, it should be possible to lower the lighting level to as little as 0.1 foot candles.

4 Lounge Areas

In these areas, individually controlled lamps can be used to supplement the overall lighting. A fixture with an incandescent bulb is a point source of light. As long as the source is near the task, this type of illumination is entirely satisfactory.

5 Furniture

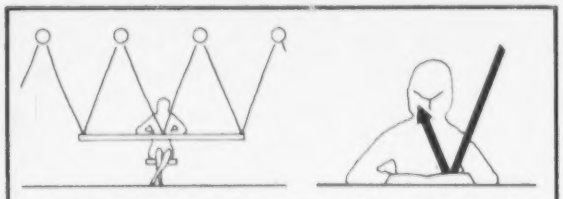
There are two extremes that should be avoided when considering surfaces for desks and table tops. On one hand, glossy surfaces can produce specular reflections which dazzle the eyes and make seeing difficult. On the other hand, materials that absorb too much light may create disturbing effects by contrasting with printed material or notepaper.

c Quality
Until recently, IES Standards considered only the quantity of light and did not include the reduction in contrast caused by veiled reflections. A veiled reflection occurs when downward-directed light bounces off the task into the eye of the reader in a way that wipes out contrast. The IES standard of 70 "classical" foot-candles has been changed to 70 "effective" foot-candles which includes the effect of veiled reflections. A recent EFL study illustrated some classrooms which were designed to as much as 100 foot-candles, yet did not measure up to the new 70 "effective" foot-candles standard.

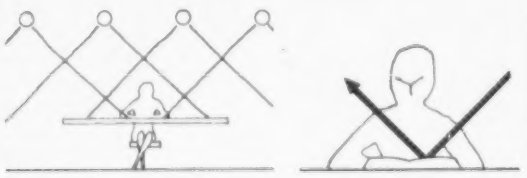
There are two ways of reducing reflected glare:

- If the area of the source is increased, the wiping-out effect of glare can be reduced. However, this calls for a large number of light fixtures which are expensive, both to install and operate.
- A more economical way to reduce glare is to use a well-designed fixture, which distributes the light more effectively.

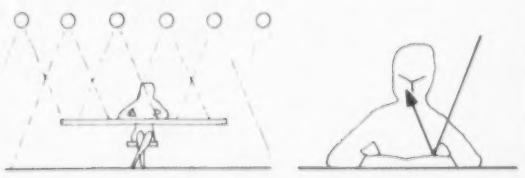
Excessively bright light sources can cause visual discomfort. However, the brightness at any given point can be reduced by spreading the source over a larger area. The brightness difference between the ceiling and the luminaires should be kept to a minimum.



Overhead teardrop pattern of light causes glare and reduces contrast.



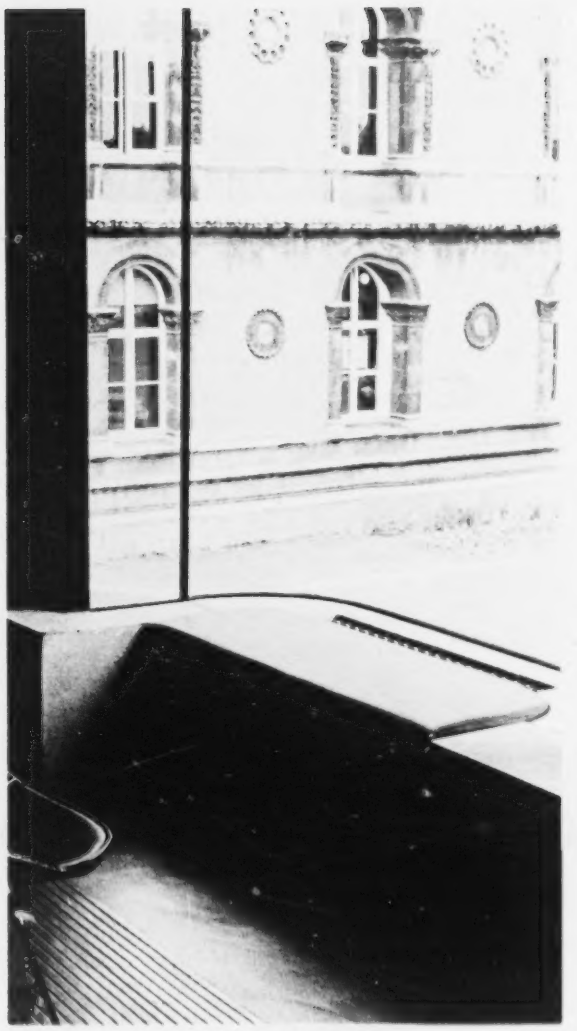
Solution A:
A fixture is used which minimizes downward directed light and eliminates glare



Solution B:
Area of the light source is increased and thus brightness is reduced at any given point.

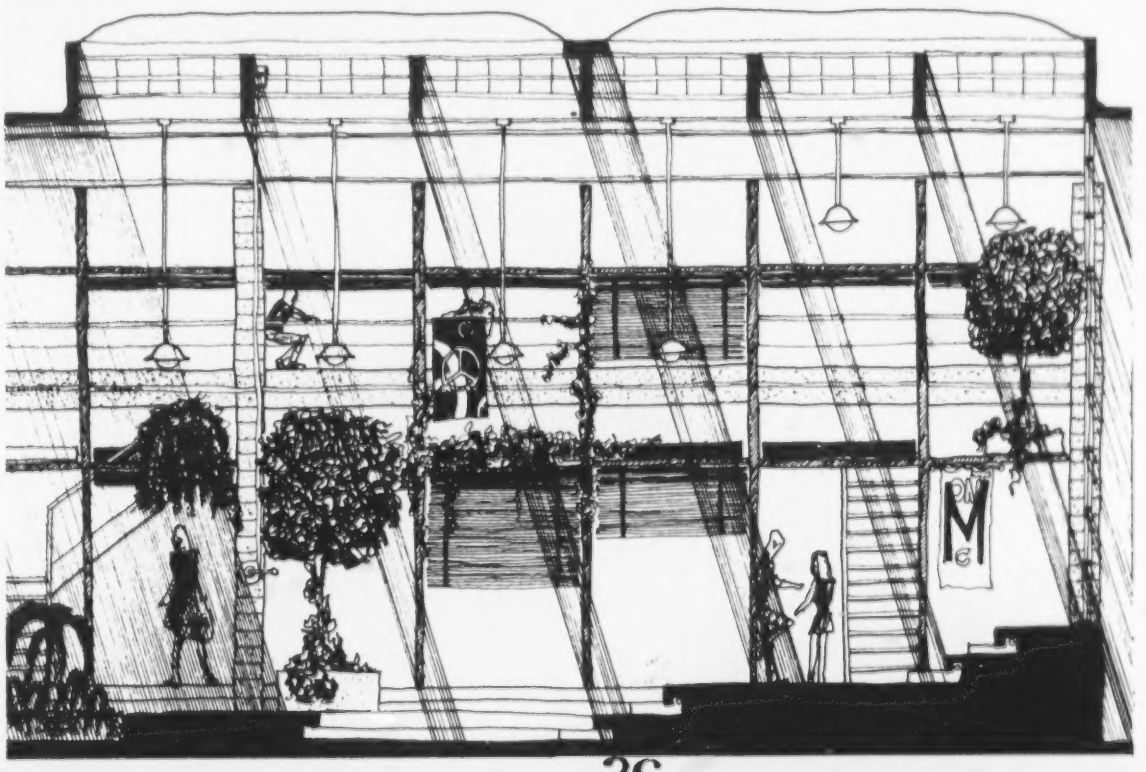
3 Natural Light
Natural light is too often considered a hazard because it is "too difficult to control". Yet it is very unpleasant to work for a long time in a space that is isolated from natural surroundings. Natural light can be a great asset to a library because it offsets the overpowering effect of "white" fluorescent light. Views of the outside also provide relief from detailed close work.

The best orientation for windows and skylights is towards the north and the east, where there is minimal glare from the sun. Windows on the south or west, on the other hand, must be provided with means of keeping out direct sunlight when necessary.



A curved plate glass window surrounds a cushioned window seat, providing it with good natural light and an excellent view.
Trinity College Library, Dublin
Architects: Ahrends, Burton and Koralek

The combination of electrical and natural light has been carefully considered in this light court and reading area Sheridan College: Phase 3A
Architects: Marani Rounthwaite and Dick



Electrical

For electrical purposes, a resource centre can be broken down into two basic areas: the major part of the library, which will have fairly standard wiring requirements although the system must be easy to add to or alter, and a more specific technical area, which will have special wiring requirements for equipment. This should be designated at a fairly early stage in planning, even if application of technical devices is not immediately anticipated.

Exact future requirements in the major part of the library will be difficult to predict. As different operations will change their location with the growth of the library, power must be provided throughout. Microfilm viewers, input terminals, and photocopying machines need only power, and thus can be located anywhere in this area. The book *New Library Design* by Stephen Langmead and Margaret Beckman suggests that expensive conduits should be avoided in this part of the library because exact future requirements are unknown. As an alternative they suggest that a 12″ space be left clear between the floor and the suspended ceiling. This space is in addition to that required by the air-handling ducts, and no other trades should be permitted to use it. Suspended ceilings make this space 100 per cent accessible. Furthermore, holes can be drilled through the floor, thus making it easy to install future wiring services when necessary.

The needs of the technical area can be more clearly defined. This will be the location for data collection systems or environmental carrels which require special shielded cables or coaxial cables. The most suitable system for these power and communication cables is a built-in triple underfloor duct with inserts spaced at regular intervals.

Acoustics

1 Noise

Both airborne and impact noise must be considered at the planning stage if they are to be properly controlled. Airborne noise is caused by mechanical equipment, conversation, or external sources such as expressways. The reverberation from these noises may be reduced by acoustic ceilings or carpeting. The structure should also be designed to minimize the transfer of sounds. Impact noises such as clattering heels or moving chairs can be greatly reduced by carpeting and its absorbent properties. Another means of reducing unwanted noise is to establish noise zones where different levels can be expected. Books are good sound-reducing agents and can be used to help create quiet zones.

Zones where conversation is anticipated should be grouped so as to form a buffer between zones of different noise levels such as the library entrance, and the quiet study zone.

For example, an allocation of space based on 3 major noise levels:

Level 1
20% of library area
Conversation, bull sessions, smoking, coffee, meeting spot, music, outside uses fully relaxed.
(Note: if there is a nearby facility for these kinds of activities, they would probably not occur within the resource centre)

Level 2
30% of library area
Reading, browsing, consultation, light study, homework area, carrel tables, lounges

Level 3
50% of library area
Quiet reading, intensive research, intensive reading, study (carrels)

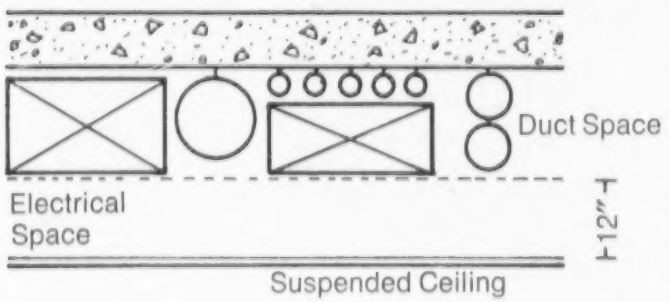
2 Carpeting

Carpeting is the most satisfactory library floor covering from the standpoint of acoustic properties, comfort, the visual environment, and probably maintenance costs. The trend towards the use of carpeting in educational environments has been growing since the late 1950s — long enough for carpeting to prove its advantages. Although the use of carpeting in other areas of the college might be open to discussion, a carpeted resource centre is rarely controversial today.

Carpeting creates a relaxed but respected atmosphere in educational situations. Carpeting encourages sitting on the floor, which makes it easy to use space without moving furniture. It also permits easy browsing on the lower bookshelves.

a Acoustic Properties

The acoustic properties of carpeting are far superior to any other available floor covering. This has been well documented in various independent research studies. Carpeting virtually eliminates impact noises from clattering heels, scraping chair legs and dropped materials — the main sources of noise in a resource centre. The sound absorption characteristics of carpeting depend on the density of pile, depth of pile, backing materials, and type of underlay. The denser and deeper the pile, the greater the absorption. Jute and Kraft cord backings appear to have the best absorption qualities. Underlays substantially increase the absorption and are necessary if the highest sound absorption is to be achieved. Sponge rubber tends to be less absorptive than hair-felt and foam rubber. It may be possible to save money by eliminating other acoustic treatments in the library through the use of carpeting. If the ceiling does not require acoustic treatment, a more effective lighting design may be possible.



b Maintenance Costs
Studies seem to indicate that the maintenance cost of carpeting is substantially less than that of any other floor covering. Unfortunately, the documented studies on this aspect all appear in articles associated with representatives of the carpeting industry. The American Library Association states that "the savings in maintenance costs when carpeting is used can be as much as 50 per cent". The savings in maintenance should be considered in evaluating the life of the carpeting and the replacement costs.

Worn areas can be removed and practically invisibly replaced by experts. It is advisable to order an extra quantity for such eventualities at the time of the original purchase. It is far easier to insert a satisfactory patch if a continuous filament carpet with a vulcanized rubber backing is used rather than a carpet with a separate backing.

A regular maintenance schedule needs to be adopted. Daily vacuuming and an annual shampoo are usually sufficient. Areas of heavy traffic may require shampooing every few months.

c Static Electricity
If the air-conditioning system is designed to humidify the air by 30 per cent, this problem can be eliminated. In a number of low-cost air-conditioning systems there is little or no provision for humidity control. Although a special backing incorporating a fine mesh of copper wiring to ground the static electricity is available, it is unlikely that the added cost would be justified.

d Carpet Life
The cost of the carpet should be computed against the anticipated durability and evaluated on an annual basis. While the colleges are in the development stage and the library is frequently relocated, it may *not* be advisable to invest in a long lasting material. The future use of the area must be considered before a decision is made. When the library is in a permanent location, the soil and stain resistance of the carpet needs to be carefully studied together with the life of the material.

The design of the flooring in a permanent facility should take into account replacing heavy-wear areas more frequently. Trying to match an existing colour is rarely satisfactory, but a contrasting colour might be employed most effectively if this eventuality is considered in the initial selection.

e Carpet fibres
Comparative behaviours of carpet fibres*

	Wool	Nylon Caprolar Enkaloft Cumuloft Antron Nyloft	Acrylic Acrilan Lourtelle Orlon Creslan Lefion	Modacrylic	Polypropylene Herculon Maruess Polycrest Vecta
Wear Life	high	extra high	high	high	extra high
Texture Retention	high	medium	medium	medium	medium
Compression Resistance	medium	medium	medium	medium	low
Resilience	high	medium	high	medium	medium
Soil Resistance	high	medium	high	high	high
Stain Resistance	medium	high	high	high	high
Wet Cleanabiilty	high	medium	medium	medium	moderate
Static Generation	medium	high	medium	medium	low
Cost Installed 1969	medium $8.34 to 23.40	moderate $8.30 to 13.54	medium $9.54 to 21.54	medium $10.74 to 20.34	medium $7.00 to 10.50

*From Canadian Interiors, August 1969, p. 18.

Wool is still the best carpet fibre available. Acrylics come nearest to wool in appearance and properties. Polyester fibres include Dacron, Fortrel, Terylene, Kodel, and Vycron. These are the newest of the carpet fibres and are reported to have good wear and crush resistance. Some carpeting is composed of a blend of fibre types in an effort to obtain maximum distribution of their beneficial qualities.

f Book Trolleys
Moving book trolleys over carpeting may present a slight difficulty in some cases. Check that the trolley wheels have been designed for use on carpeting before selecting a particular model.

Activity Areas

The Introductory Space
The area near the entrance to the resource centre has the potential of being a very special place in the college. It is unlike a student lounge in that it is quieter and more subdued, yet, at the same time, it is a place where a unique combination of activities is generated. It can be a good spot to meet other students, browse through paperbacks, look at recent displays, or simply watch what other people are doing. This kind of function will advertise the resource centre and invite students to use it. The student should *not* be intimidated by confusing rules and procedures at the entrance. The resource centre is usually an integral part of other college buildings, and so there is no need to include lockers or washrooms at the resource-centre entrance.

There are numerous ways to support activities in the introductory space. First, a decision has to be made on where such a space would best be located. At Niagara College, the browsing area can be easily seen from general circulation spaces outside the library. Consideration was given to people who are shy and hesitant in unfamiliar situations. Once they become familiar with the browsing area, it becomes much easier to venture into the other sections of the library.

1 Displays
Wall space should be provided for both permanent and temporary exhibitions in the introductory space. Extravagant display cases are unnecessary. It should be possible to arrange the exhibitions so that they can be seen from both the corridor and the interior of the library.

2 Paperbacks
This is an excellent location for racks of paperbacks because their circulation need not be stringently controlled. Paperbacks help to encourage general reading habits.

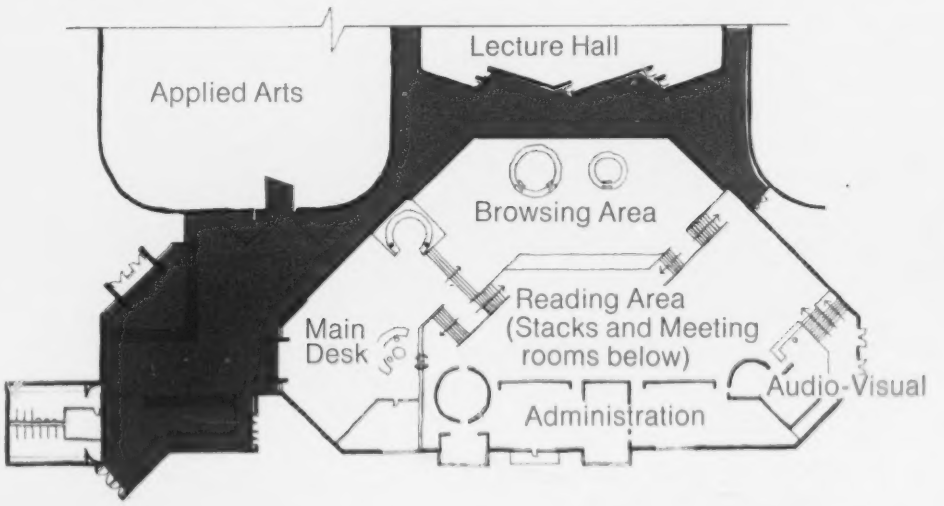
3 Informal Furniture
One purpose of informal areas in a CAAT resource centre is to create a relaxed atmosphere that encourages use of the facility by the students.
Although the introductory space is an excellent location for informal activities, casual reading areas can be dispersed throughout the library.

At present about 20 per cent of the seating in public libraries and 10 per cent in academic libraries is informal. However, the quantity and type of such furniture must be determined through careful analysis; rather than on the basis of a formula. It should provide a comfortable alternative to the study carrel or table and chair. The sofa and chair "living room" arrangement is *not* suitable. One or two students may occupy the end positions on a sofa, but only under the utmost pressure for a seat will the centre position be occupied. Library committees and interior designers need to recognize that their decisions about furniture are among the most important in the planning procedure.

1 Browsing area with reading pits

2 Informal furniture and art displays in browsing area
McLaughlin Library: University of Guelph

Plan illustrates close relationship between browsing area and circulation space
Niagara College Resource Centre
Architects: Gerencser and Russell



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Circulation and Control

The procedures at the main desk are varied. It is here that material is checked out or returned and information given about the use of the library. All outgoing and incoming material must be controlled from this point.

The way in which this part of the library is organized can be based, to some extent, on the behaviour patterns of the users at the particular college.

"Behaviour patterns range from complete self-help to routing every request through the library staff, extremes which require quite different approaches to the arrangement of material.

Whatever the nature of the clientele, it can be stated with some confidence that in the average library, more than half the users over a specific period will not ask the library staff for help but will rely entirely on finding the material themselves. The importance of good arrangement and adequate guiding and shelf marking cannot, therefore, be over-emphasized."

Special Libraries, pp. 233-4

In the case of an established campus, the pattern of use in the existing library can be analysed. If the resource centre is to be located on a new campus, various functioning colleges can be used as test-study cases.

The main desk should have adequate space for files and storage. Well-designed signs can help to simplify complicated procedures. For example, at the Seneca resource centre, material that is complicated to work with, such as government documents or pamphlets, is located near the main desk. In this way, there is always someone nearby to help the student find what he wants. The planning of the main desk will also be affected by the system used for reserving books. The "closed reserve" system is the traditional method of assuring that each student has the opportunity to get a book assigned to a whole class for reading. These books are usually kept behind the circulation desk and checked out on a short term basis. This system has disadvantages:

- For the student:

it is difficult to obtain reserve material

- For the librarian:

too much time is spent checking items in and out
duplicate copies are expensive
there is congestion at the circulation desk

- For the faculty:

students tend not to go beyond the reserve collection

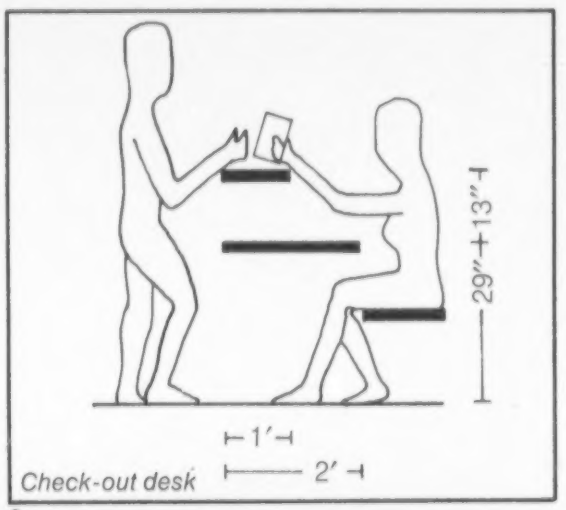
Many colleges are now supplementing this system with "open reserves" or "course shelves". These are usually fairly large selections culled from the general collection and assembled to encourage browsing. The loan period on these books is also limited.

Security and control must be considered when the circulation desk is being planned. A library that is inviting to all users need not necessarily be one that is difficult to control. There should only be *one* public entry supervised from the main desk. Otherwise, the job of controlling the library becomes too time-consuming for the library staff. If the size and configuration of the space require additional exits to comply with the fire marshal's regulations, these should have special panic hardware connected to an alarm system. Secondary exits, supervised from a library staff-member's workdesk, rarely prove satisfactory because the nature of the work requires frequent trips away from the desk location. The report prepared by Lee Ash for Ryerson saw the need for far more stringent security measures:

"At Ryerson, better provision must be made for the checking or inspection of bookbags and briefcases of all library users (in most schools, faculty offend the law as often as do students). I would recommend also, the adoption of a school-wide plastic identification card (for use throughout the school and at sporting events, as necessary) which can be integrated into a modified book charging system at the library. Some control of this kind is absolutely necessary since, at the time of writing, it is possible for anyone to take out a book merely by signing himself as a student or faculty member without having to show any official identification card. In the event of continued book losses, a turnstile and guard at the door may be necessary, a system used in many other modern academic and public institutions."

Losses at North American libraries average one to three per cent annually. Figures for CAAT libraries are not available but it is likely that the problem of theft varies significantly according to campus location. In any library the items most likely to disappear are the most expensive, most in demand, or most difficult to replace. If "unauthorized borrowing becomes a serious problem, detection devices that were originally developed for shops can be used. A paper-thin metallic strip 7" long, which can activate a security system, can be concealed in book bindings, tape cassettes, record jackets, projection equipment, and so forth. The strip emits an electronic signal when carried past a sensing device. It can be made to sound an alarm, turn on a light, lock a gate, and so forth. The signal is capable of penetrating clothing and briefcases and is not deterred by simple shielding devices such as aluminum foil. Circulating strips can be desensitized at the check-out desk and recharged when the item is returned.

The cost of any security system must be evaluated against the losses involved. Not only the value of the items involved, but also the expense of recording and the inconvenience of not having necessary materials at hand until they are replaced, should be considered.



Check-out desk

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1 Main desk

2 Photostat machine in check-out area

Centennial College Resource Centre

General Use Areas
Students from different departments use the same material, but frequently in different ways, and for different reasons. For example, the material may be used:

- to consult a number of examples and discuss
- to refer to data and short extracts
- to read one source in silent concentration.

A wide variety of furniture is required to accommodate this range of activities. The study carrel is best suited to private study, while large tables are good for looking up subjects in catalogues or consulting a variety of sources. Informal chairs are best for reading books and periodicals. (Specific facilities for using audio-visual equipment are described in Part 4, "The Non-Print Collection".) As long as there is a good choice of situations, each individual need will be accommodated.

All too frequently the design of the interior is only considered after the building is completed and funds originally intended for furnishings have been absorbed in unanticipated building costs. The furniture and equipment design should be developed along with the preliminary sketch plans, and budget figures should be established at the outset. If a budget cut is necessary, it is best to reduce the number of furniture items, not the quality. The number of items can be easily increased later, but the quality cannot be upgraded.

Special Study Areas
Group-project situations, where students work in the library on a common project, discussing and using various library materials together, arise frequently. Therefore, a number of small rooms, specifically designed for the collective use of library material should be provided within the resource centre. These rooms should be designed to accommodate from two to ten people each. It is important that they be acoustically segregated so that the group activities do not disturb quieter library operations. The rooms should have adequate electrical services, so that lights can be separately controlled and audio-visual equipment used. A chalkboard and a typewriter should be provided. One of these rooms can also serve as a seminar room for the librarian and his staff.

Staff and Workroom
An area must be planned that includes the librarian's office, workspace, and a receiving area for deliveries. This should be related to catalogues and duplicating equipment within the resource centre and also to an outside service entrance for deliveries. In this space various tasks—unpacking, labelling, cataloguing, storing—are performed.

It is preferable to locate the workspace in a contiguous area. This is probably not very important in a small resource centre but as the centre grows, it becomes more important to consolidate the workspace. The manner in which the workspace will grow should be anticipated at the planning stage.

A resource centre normally has a large number of deliveries, both in terms of weight and quantity. Therefore it is best to locate it at ground level. If this is not possible, the freight elevator for the entire college should be near the resource centre.

The workroom requires a sink for washing hands and cleaning equipment. There must be ample storage and counter space for supplies, periodicals awaiting binding, and other material.

1 Group study area
Niagara College Resource Centre

2 Staff work area

1

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